

## 5.2 Biological Resources

This section describes biological resources in and near the proposed CPV Vaca Station (CPVVS) project, and the potential effects that the project may have on these resources. Section 5.2.1 discusses the affected environment, including an overview of the region, habitat and vegetation communities, and special-status species. Section 5.2.1.4 presents the results of biological surveys in and near the proposed CPVVS site. Section 5.2.2 presents an environmental analysis of the proposed CPVVS project, including standards of significance, potential impacts of construction and operation of the CPVVS facility, and impacts to special-status species. Section 5.2.3 evaluates any potential cumulative effects to biological resources in the project vicinity, and Section 5.2.4 addresses proposed mitigation measures that would avoid, minimize, or compensate for adverse impacts. Section 5.2.5 presents agency contacts, and Section 5.2.6 presents permit requirements. Section 5.2.7 contains technical references.

### 5.2.1 Affected Environment

This section provides an overview of the region and discussions of regional habitat and vegetation communities, regional special-status plant species, and the methods and results of biological surveys in and near the CPVVS site.

For the purposes of this document, the CPVVS site includes the main CPVVS facility site, the adjacent temporary construction laydown area to the north of the CPVVS facility, the 230-kV transmission line and substation to the west of the CPVVS facility, and the natural gas pipeline east of the CPVVS facility. The regional overview of the project area includes, but is not limited to, the area within 10 miles of the CPVVS site (Figure 5.2-1).

The project site is approximately 60 feet above mean sea level and can be found on the U.S. Geological Survey (USGS) Elmira, California 7.5-minute series topographic quadrangle within Township 6 North, Range 1 East, Section 30. The main CPVVS facility will be located immediately north of Fry Road between Vaca Station Road and Lewis Road. The primary land use in the region is agricultural, with active farming occurring on lands to the north, east, south, and west.

A description of regional biogeography and habitat types was obtained from reference sources including *Ecological Subregions of California* (USDA, 1997), *Preliminary Descriptions of the Terrestrial Natural Communities of California* (Holland, 1986), *A Manual of California Vegetation* (Sawyer and Keeler-Wolf, 1995), the California Department of Fish and Game (CDFG) *Biological Information and Observation System* (BIOS, 2008), and the *California Environmental Resources Evaluation System* (CERES, 2008). The U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) was also queried to determine the location of reported wetlands in proximity to the site. These sources, as well as aerial photographs and USGS topographical maps, were consulted to determine the terrestrial and aquatic biological resources with potential to occur within 10 miles of the CPVVS site.

A list of sensitive biological resources for the region including natural communities and special-status plant and wildlife species was compiled for the project region using the CDFG California Natural Diversity Database (CNDDDB) RareFind3 database (CNDDDB, 2008) full condensed report for the Mt. Vaca, Fairfield North, Fairfield South, Allendale, Elmira,

Denverton, Dixon, Dozier, Birds Landing, Saxon, Liberty Island, and Rio Vista 7.5-minute USGS quadrangles (Appendix 5.2C, CDFG, 2008); California Native Plant Society's (CNPS) online Inventory (CNPS, 2008) for Solano County (Skinner et al., 1994); a USFWS species list for Solano County (Appendix 5.2B, USFWS Sacramento District Office website, 2008); Draft Solano County Multispecies Habitat Conservation Plan (Draft Solano MHCP) (LSA, 2007); the Solano County Breeding Bird Atlas (Napa Solano Audubon Society 2007); and project-specific onsite field surveys. A list of potentially occurring sensitive biological resources was generated for the region based on the combined results of these reference sources. The information in the reference sources listed above is based on known occurrences, historical records, or the presence of suitable habitat for any given life stage of a particular species. Regional biological resources are depicted in Figure 5.2-1. Volume II, Appendix 5.2A includes tables listing regional special-status plant and wildlife species.

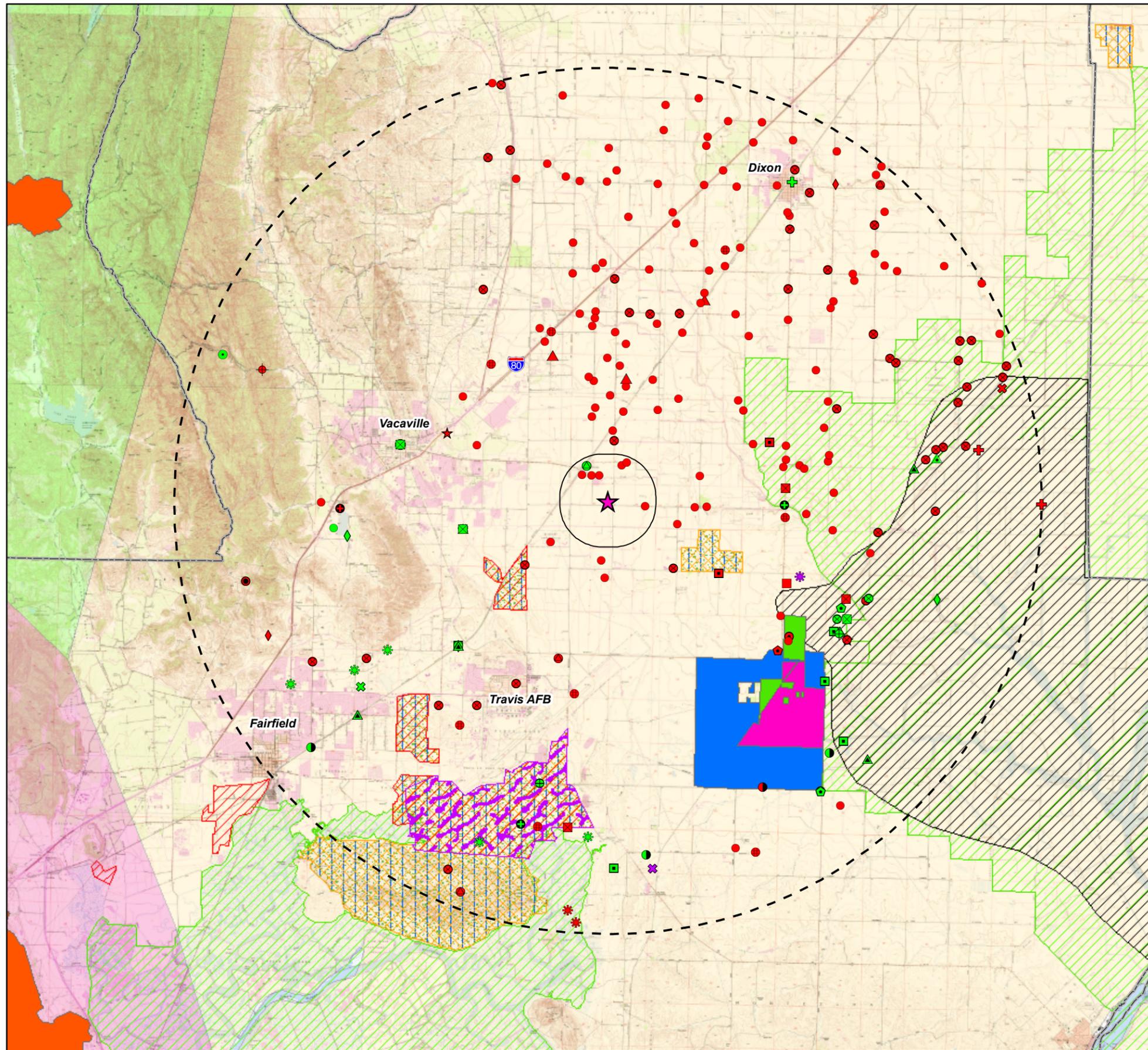
### 5.2.1.1 Regional Overview

The CPVVS site lies within the Great Valley Ecological Section, Sodic Claypan terraces subsection (USDA, 1997). This subsection consists of a late Quaternary alluvial plain on the lower west side of Sacramento Valley that slopes generally to the southeast from the base of the Northern California Interior Coast Range and Northern California Coast Range, beginning approximately 7 miles west of the CPVVS site. An area of the Central California Coast ecological section between 5 and 7 miles west of the site separates these Coast Ranges from the Great Valley. The regional climate is hot and subhumid with a mean annual temperature of about 59°F to 62°F. The mean annual precipitation is about 16 to 20 inches, practically all as rain. The mean freeze-free period is about 250 to 275 days. The predominant natural plant community in the region is needlegrass (*Nassella pulchra*) grassland. Northern claypan vernal pools are also common throughout the subsection.

Current land use within the region is primarily agriculture, relatively near developed urban areas including Vacaville (1.75 miles west of the site), Dixon (8 miles to the northeast), and Fairfield (7 miles to the southwest). Travis Air Force Base is located 4 miles south of the CPVVS site. Interstate 80 and the Union Pacific Capitol Corridor Railway are west of the CPVVS site and connect the region to the Sacramento and San Francisco Bay urban areas (Figure 5.2-1).

The construction laydown area, north of and adjacent to the CPVVS site, is approximately 0.18 mile south of Alamo Creek, within the Valley Putah-Cache Hydrologic Unit and the Sacramento River Hydrologic Region (BIOS, 2008). Alamo Creek is bounded to the south by a levee that hydrologically separates Alamo Creek from the CPVVS site.

The CPVVS site is within the Draft Solano MHCP Area. The Draft Solano MHCP is currently a final administrative draft, and addresses the following nine species that could occur at the CPVVS site: northern harrier (*Circus cyaneus*), Swainson's hawk (*Buteo swainsoni*), mountain plover (*Charadrius montanus*), western burrowing owl (*Athene cunicularia*), short-eared owl (*Asio flammeus*), saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*), yellow-breasted chat (*Icteria virens*), Suisun song sparrow (*Melospiza melodia maxillaris*), and tricolored blackbird (*Agelaius tricolor*).



**LEGEND**

★ Project Site

**Biological Resources**

**Plants**

- Brewer's western flax
- ✱ papoose tarplant
- brittlescale
- saline clover
- legenere
- bearded popcorn-flower
- Carquinez goldenbush
- ✱ Contra Costa goldfields
- two-fork clover
- ✱ Boggs Lake hedge-hyssop
- ✱ adobe-lily
- dwarf downingia
- ▲ Ferris' milk-vetch
- ◆ San Joaquin spearscale
- Baker's navarretia
- ▲ alkali milk-vetch
- heartscale

**Animals**

- Delta green ground beetle
- western pond turtle
- mountain plover
- burrowing owl
- ✱ giant garter snake
- Swainson's hawk
- ▲ white-tailed kite
- Blennosperma vernal pool andrenid bee
- ★ vernal pool tadpole shrimp
- midvalley fairy shrimp
- great egret
- Wilbur Springs shorebug
- California tiger salamander
- foothill yellow-legged frog
- California linderiella
- vernal pool fairy shrimp
- ✱ grasshopper sparrow
- ✱ California black rail
- ◆ valley elderberry longhorn beetle

**Terrestrial Community**

- ✱ Northern Claypan Vernal Pool
- ✱ Valley Needlegrass Grassland

**Critical Habitat**

- California Red-Legged Frog
- Delta green ground beetle
- Solano County Jepson Paraire Preserve
- Contra Costa Goldfields
- Vernal Pool Tadpole Shrimp
- California Tiger Salamander
- Giant Garter Snake Recovery Unit
- Delta Smelt

**Ecoregions**

- Central California Coast Section
- Great Valley Section
- Northern California Interior Coast Ranges

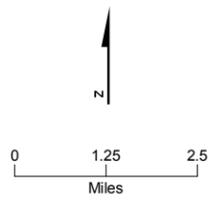
**Other Areas of Interest**

- Ten Mile Study Area
- One Mile Study Area
- Solano County Line

**Notes:**

1. Source - California Dept. of Fish and Game, California Natural Diversity Database (CNDDB) April, 2008, Solano HCP EIS/EIR, 2007, Commission for Environmental Cooperation, 1997, U.S. Environmental Protection Agency, 2005.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-1**  
**REGIONAL BIOLOGICAL RESOURCES**  
 CPV VACA STATION  
 VACAVILLE, CA

### 5.2.1.2 Regional Habitat and Vegetation Communities

Sensitive habitats within 10 miles of the CPVVS site include natural plant communities and critical habitat for federally listed species. This section discusses sensitive natural communities identified by the CNDDDB, including valley needlegrass grasslands, northern claypan vernal pools, coastal and valley freshwater marsh, and coastal brackish marsh (Figure 5.2-1; CNDDDB, 2008).

#### 5.2.1.2.1 Valley Needlegrass Grasslands

Valley needlegrass grasslands are dominated by perennial, tussock-forming purple needlegrass (*Nassella pulchra*). Native and introduced annuals often occur between the perennial grasses, often exceeding the bunchgrasses in cover. Valley needlegrass grasslands usually occur on fine-textured (often clay) soils, moist or even waterlogged during winter, but very dry in summer (Holland, 1986). The Draft Solano MHCP (LSA, 2007) separates valley needlegrass grasslands into two typically intermixed associations: vernal pool system grasslands and grassland associated with the low hills such as the Montezuma Hills and Potrero Hills and upper terraces along the valley floor. Both types of grasslands occur within 10 miles of the CPVVS site; however, neither is located within the CPVVS 1-mile survey area.

The vernal pool grassland association is characterized by the presence of often large expanses of seasonal wetlands that form in soils types where the downward movement or infiltration of water is impeded by dense clays or pans below the soil surface. Within this broad vernal pool habitat type, the true wetland vernal pool and swale plant communities typically only compose a minor component of a broader grassland matrix. Vernal pool habitats have become rare because they are often found in landscapes that favor agriculture. Historically, there were an estimated 118,227 acres of potential vernal pool grassland in Solano County. Currently, there are an estimated 50,762 acres of potential vernal pool grassland habitat remaining (43 percent of the historical potential), although much of the remaining vernal pool habitats have been highly altered through past land use activities (LSA, 2007).

The characteristic dominant species of the grassland matrix in the vernal pool associations and in the higher ground and low-hilly areas on the Valley Floor typically include many of the same introduced annual grasses and forbs that characterize the Upland Grassland Community. These species include wild oats (*Avena* sp.), various bromes and barleys (*Bromus* spp. and *Hordeum* spp.), Italian wildrye, filarees, mustards, wild radish, mallows, vetches, and starthistles. In portions of Solano County, particularly in the Montezuma Hills, the valley floor grasslands are also periodically cultivated for dryland production of oats, wheat, and barley. While these areas are often regularly cultivated, many of the grassland ecosystem functions remain (LSA, 2007)

#### 5.2.1.2.2 Vernal Pools

Vernal pools are generally small, ephemeral (seasonal) wetlands that form in shallow depressions underlain by a hardpan (i.e., a layer near the ground surface that restricts the percolation of water). These depressions fill with rainwater and runoff from adjacent areas during the winter and may remain inundated during the spring to early summer. Vernal pools are found in areas of level, or gently undulating topography in the lowlands of California, especially in the grasslands of the Central Valley. Rising spring temperatures

cause the water to evaporate, promoting the growth of concentric bands of many plant species, especially wildflowers, along the shrinking edge of the pool. The vernal pool vegetation in California is characterized by a high percentage of native species, several of which are endemic (restricted) to vernal pools. Many of these plant species, as well as a number of animal species, are listed as or are otherwise considered to be rare, threatened or endangered. As a result, species found in these kinds of grassland are different than those found in upland areas (LSA, 2007).

Northern Claypan Vernal Pool is the most common vernal pool type in Solano County. This type of vernal pool community is prevalent in the central portion of the County, particularly east of Fairfield and Suisun City, extending beyond the Jepson Prairie preserve toward the eastern boundary of the Draft Solano MHCP Area. This community type is typically associated with basin-rim and low-terrace alluvial soils, including Antioch, San Ysidro, Pescadero, Solano, Millsap, Sycamore, and Clear Lake soil series. The pools occur on neutral to alkaline, silica-cemented, hardpan soils that are often more or less saline. Pools may be small, covering only a few square meters, or large, covering several hectares. The larger ones are referred to as vernal lakes or playa pools. Characteristic native species include goldfields (*Lasthenia fremontii*, *L. glaberrima*), coyote thistles (*Eryngium spp.*), dwarf blennosperma (*Blennosperma nanum*), spreading alkali-weed (*Cressa truxillensis*), and Douglas' mesamint (*Pogogyne douglasii*) (LSA, 2007).

#### 5.2.1.2.3 Coastal and Valley Freshwater Marsh

Typical freshwater marsh develops in shallow, standing or slow-moving water at the edge of ponds and streams, and at other sites that lack currents and are permanently flooded by fresh water. This plant community is typically dominated by up to 12-foot-tall, perennial, emergent plants. Characteristic species include cattails (*Typha angustifolia*, *T. domingensis*, *T. latifolia*) and bulrushes (*Scirpus acutus*, *S. americanus*, *S. californicus*). Other smaller hydrophytic species are also present, including sedges (*Carex spp.*), flat-sedges (*Cyperus spp.*) bur-reed (*Sparganium eurycarpum*), and penny-wort (*Hydrocotyle verticillata*). In Solano County, the freshwater marsh plant community is present in the upper reaches of Suisun Marsh, in portions of the Delta where saltwater intrusion is absent or at least minimal, and in association with numerous, slow moving freshwater streams and ponds (LSA, 2007).

#### 5.2.1.2.4 Coastal Brackish Marsh

Brackish marsh vegetation develops in shallow, standing or slow-moving waters in coastal bays, estuaries and coastal lagoons, where fresh water meets salt water in a tidal area. Salinity may vary daily and seasonally depending on tide and level of freshwater input. Brackish marsh usually intergrades with saltmarsh toward the saline waterbody, and with freshwater marsh at the mouths of rivers, especially in the Sacramento-San Joaquin River Delta. Brackish marsh generally has species in common with both coastal saltmarsh and freshwater marsh and is typically dominated by perennial, emergent, herbaceous plants up to two meters in height. The most common species are cattails (*Typha spp.*) and species of bulrush (*Scirpus spp.*), especially alkali rush (*Scirpus robustus*). Depending on the salinity, species of sedge (*Carex spp.*), rush (*Juncus spp.*), pickleweed, and others, may be present.

Brackish marsh is extensively developed around Suisun Bay in Solano County, including Suisun Marsh, and at the mouth of the Sacramento-San Joaquin River Delta. Many of the brackish marsh communities within the county occur in diked environments that are managed for waterfowl habitats values (nesting, feeding, resting, and hunting). As with the

northern salt marsh communities, the altered hydrological conditions in the diked, non-tidal brackish communities often do not support many of the uncommon plant and animal species found in the more natural tidal marshes; however, such marshes can be highly important to other special-status wildlife species (LSA, 2007).

### 5.2.1.3 Regional Sensitive or Special-status Species

Complete tables listing all special-status species found within the project region are found in Appendix 5.2A (Tables 5.2A-1a and 5.2A-1b). The tables include regional species listed as threatened or endangered that have special requirements under the federal Endangered Species Act (ESA) (USFWS, 1970) and the California Endangered Species Act (CESA) (CDFG, 2003). Other non-listed sensitive and special-status species including CNPS List 1-4 species, CDFG Species of Special Concern, CDFG Fully Protected Species, CDFG Special Animals and bird species addressed by the Migratory Bird Treaty Act (MBTA) are also tabulated in Appendix 5.2A. This appendix includes the status designation for each species, habitat types that may support these species in the project region, a determination of potential for these species to occur within the CPVVS 1-mile survey area, and a rationale for the occurrence determination. The known locations of special-status species identified in the CNDDDB records within a 10-mile range of the CPVVS site are shown on Figure 5.2-1.

Plants were considered to be sensitive or special-status if one or more of the following criteria were met:

- Federally or state-listed, proposed, or candidate for listing, as rare, threatened or endangered (USFWS, 1996; CNDDDB, 2008)
- State Special Plant as defined by the CNDDDB (CNDDDB, 2008)
- Designated by the California Native Plant Society in its Inventory of Rare and Endangered Plants of California (CNPS 2007)

Animals were considered to be sensitive or special-status if one or more of the following criteria were met:

- Federally- or state-listed, proposed, or candidate for listing as threatened or endangered (USFWS, 1996; CNDDDB, 2008)
- California State Species of Concern as defined by the CNDDDB (CNDDDB, 2008)
- California State Fully Protected Species (CDFG 2008)
- State Special Animal as defined by the CNDDDB (CNDDDB, 2008)

Information acquired from the sources listed in Section 5.2.1 resulted in a list of 62 special-status plant species (Table 5.2A-1a in Appendix 5.2A) and 183 special-status animal species with potential to occur in the region (Table 5.2A-1b in Appendix 5.2A). Sensitive and special-status species from the regional lists with habitat(s) and/or known distribution within the 1-mile survey area for the project were evaluated for potential impacts from CPVVS project construction and operation, and the results of the evaluation are discussed below in Section 5.2.1.4. Special-status species from the regional lists with habitats or known distribution that do not occur within the project area were not evaluated beyond the tables in Appendix 5.2A.

#### 5.2.1.4 Biological Surveys

Biological resources evaluated for project impacts included plant communities, wildlife habitat, wetlands, and special-status species within the temporary and permanent CPVVS site impact locations. Information obtained during the literature review and field surveys was used to determine which special-status species might have the potential to occur within the CPVVS site. Information on species status, habitat preferences, geographic distribution, elevation range, and known locations in the vicinity of the project site was researched prior to the initiation of the field surveys.

Habitat and plant community surveys were conducted within a 1-mile radius of the CPVVS main facility and substation, and a 2,000-foot corridor along the potable water pipeline, the electrical transmission line, and the natural gas pipeline (Figure 5.2-2). The linear features are primarily within 1 mile of the CPVVS site. In this section, these contiguous areas are referred to collectively as the CPVVS 1-mile survey area. The AFC data adequacy requirements do not include a separate survey area for related non-linear facilities, including temporary laydown areas; however, the 24-acre construction laydown area is well within the 1-mile survey area described above. Plant community and wildlife habitat assessments were conducted within the 1-mile survey area to determine if sensitive habitats occur within or near the CPVVS site and associated facilities. In addition, protocol surveys for rare plants, western burrowing owl and Swainson's hawk were conducted within the CPVVS 1-mile survey area following established survey protocols.

The CPVVS 1-mile survey area was accessed from existing roads by vehicle and/or on foot. Habitat conditions within the CPVVS 1-mile survey area were assessed, and a preliminary classification of the vegetation types was developed. All field surveys were aided by aerial images. Photographs were also taken to document biological resources in the CPVVS 1-mile survey area.

The regional special-status species lists described in Section 5.2.1.3 were evaluated against conditions within the CPVVS 1-mile survey area to determine the likelihood of special-status species occurrence in the area. The potential for special-status species to occur within the CPVVS 1-mile survey area was assessed by researching special-status species with potential to be found within the project region, compiling information on their conservation status, distributions, habitat characteristics, and known presence in the project region, including nearest known locations. A species was determined to have potential to occur within the CPVVS 1-mile survey area if its known or expected geographic range includes the project vicinity and if suitable habitat for the species was observed or had potential to be present.

The field surveys were aided by aerial imagery, which helped identify potential habitat and plant community boundary areas. The presence, or potential presence, of sensitive biological resources was determined from information gathered during reconnaissance surveys, focused wildlife and botanical surveys and wetland delineations conducted for the project, as well as published and unpublished literature and natural resource agency databases.

The following sections describe the biological conditions within the CPVVS 1-mile survey area, including habitat and vegetation communities, species with potential to occur, and observed species. Biological field surveys of the CPVVS site and 1-mile survey area were

performed by biologist Michael Clary on April 11, May 14, May 21, May 29 and June 13, 2008. Rare plant surveys were conducted by Ms. Virginia Dains on May 29, 2008. Western burrowing owl and Swainson's hawk surveys were conducted by Mr. Dan Williams on June 13, 2008. Nighttime bat and owl surveys were conducted by Michael Clary on July 8 and July 10, 2008. Resumes for Ms. Dains, Mr. Williams, and Mr. Clary are provided in Appendix 5.2B. Table 5.2-1 (included at the end of this section because of its size) lists plant and animal species observed during the field surveys.

#### 5.2.1.5 CPVVS 1-mile Survey Area Habitat and Vegetation Communities

As discussed previously, habitat and plant community surveys were conducted within the CPVVS 1-mile survey area, including the CPVVS site. The following sections discuss habitat and vegetation communities within the CPVVS 1-mile survey area. Figure 5.2-2 shows the vegetation communities within these areas at a scale of 1:6,000.

Reconnaissance surveys within the CPVVS 1-mile survey area were conducted to classify habitat and plant communities, and to assess the likelihood of special-status species occurrence. An aerial image at a scale of 1:6,000 was used to locate, access, and characterize habitat and plant communities within the 1-mile survey area. Habitats and plant communities within 1 mile of the CPVVS site include Riparian Woodland, Agriculture, Residential/Recreational, and Ruderal.

##### 5.2.1.5.1 Riparian Woodland

The only natural plant community within the 1-mile survey area is a narrow band of riparian woodland bordering Alamo Creek approximately 0.18 mile north of the construction laydown area.

The dominant trees in riparian woodland are most commonly winter-deciduous, broadleaved trees, up to 60 feet in height, with a canopy cover ranging from relatively open to very dense. "True" riparian species, i.e., species that are dependent on available water year round, are found along major rivers and streams and other freshwater features. Cottonwoods (*Populus spp.*) and willows (*Salix spp.*), mixed with bigleaf maple (*Acer macrophyllum*), Oregon ash (*Fraxinus latifolia*), box elder (*Acer negundo*), and California sycamore (*Platanus racemosa*) are the most commonly occurring "true" riparian trees in central California. Valley oak (*Quercus lobata*) is common in riparian areas in the Central Valley as are various species of walnut (*Juglans californica ssp. hindsii*; *J. nigra*; *J. regia*). Other trees, including coast live oak (*Quercus agrifolia*) and California bay (*Umbellularia californica*), are components of riparian vegetation in woodland/forest areas and also grow in less wet environments. Riparian woodland commonly has a shrubby understory. Riparian areas in Solano County have been severely degraded as a result of residential, commercial, and agricultural development. Although the structure (i.e., the vertical stratification of the riparian vegetation) has been maintained along some of the major streams in the County, the width of the "corridors" has been greatly reduced due to human activities. Riparian corridors are now commonly only as wide as the diameter of one tree's canopy. In addition, sections of most major streams have been channelized and the natural riparian vegetation has been removed (LSA, 2007).

Well-developed riparian plant communities now primarily occur along the banks of small portions of major creeks, including Alamo Creek. In those remaining well-developed riparian areas, the tree canopy is dominated by Fremont's cottonwood (*Populus fremontii*)

and willows, including red willow (*Salix laevigata*), Pacific willow (*S. lucida ssp. lasiandra*), arroyo willow (*S. lasiolepis*), and sandbar willow (*S. exigua*), but other trees associated with riparian areas are also present (LSA, 2007).

The Draft Solano MHCP describes Alamo Creek as a priority drainage and watershed area that represents a high value conservation area. This riparian area provides a movement corridor as well as cover, roosting, and nesting opportunities for numerous species, including the State listed as Threatened Swainson's hawk and the western red bat, a State species of special concern. It may also provide habitat for valley elderberry longhorn beetle, foothill yellow-legged frog, and yellow-breasted chat. This riparian corridor extends from the interior coast range east of the CPVVS site, through the city of Vacaville to agricultural fields west of the CPVVS site. Within 1 mile of the CPVVS site, Alamo Creek becomes channelized as an irrigation canal prior to its confluence with Ulatis Creek.

The riparian woodland community within the 1-mile survey area is dominated by valley oak, California buckeye (*Aesculus californica*), blue elderberry (*Sambucus mexicana*), and poison oak (*Toxicodendron diversiloba*).

#### 5.2.1.5.2 Agriculture

The largest habitat type within the 1-mile survey area is agriculture; including cropland, pastureland, and disked agricultural areas such as are present within the CPVVS facility, construction laydown area, and a portion of the 230-kV electrical transmission line. Rural residences, roadways, drainage ditches, irrigation canals, and other land uses associated with agriculture are included in this habitat type. This habitat provides foraging opportunities for Swainson's hawk, white-tailed kite (*Elanus leucurus*), tricolored blackbird (*Agelaius tricolor*), and coyote (*Canis latrans*). Agricultural drains and adjacent areas within agricultural habitat may also provide aquatic and upland foraging habitat for giant garter snake (*Thamnophis gigas*). The most dominant agricultural crops within the 1-mile survey area are alfalfa and hay grain.

#### 5.2.1.5.3 Residential/Recreational/Industrial

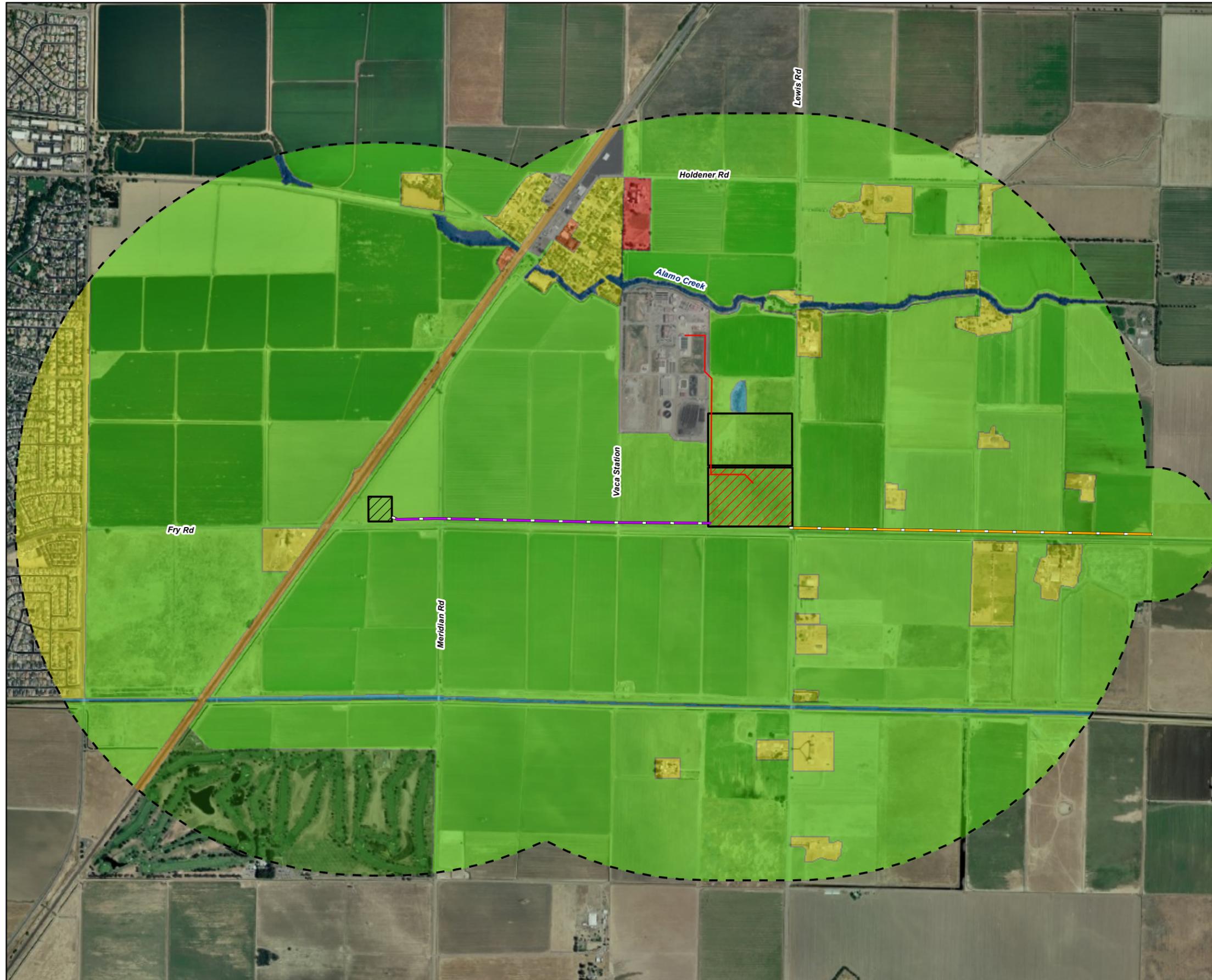
The residential areas of Elmira and Vacaville occur to the north and west, respectively, and a recreational golf course is south of the CPVVS site. The Easterly Wastewater Treatment Plant (EWTP) is an industrial area. These areas may provide habitat for birds protected under the MBTA, such as house finch (*Carpodacus mexicanus*), northern mockingbird (*Mimus polyglottos*), and Canada goose (*Branta canadensis*), among other avian and terrestrial species.

#### CPVVS Site Habitat and Vegetation Communities

The CPVVS site is located in inactive (disked), and active (crop or pasture) agricultural areas, as described below.

#### 5.2.1.5.4 CPVVS Facility, Temporary Construction Laydown Area, and Potable Water Supply Pipeline

Currently, the CPVVS facility and temporary construction laydown sites are zoned Community Facilities (CF) and are designated in the Vacaville General Plan as Unique Farmland, or farmland that is other than Prime or of Statewide importance, with lesser quality soils (City of Vacaville, 2007). During initial field surveys, it was determined that the CPVVS facility and construction laydown sites occupy 48 contiguous acres of former agricultural land that had become heavily vegetated with ruderal herbaceous species

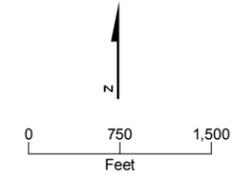


- LEGEND**
- Utility Corridor to WWTP
  - Natural Gas Pipeline Route
  - Electrical Transmission Line Route
  - ▨ New VEC Substation
  - ▨ VEC Project Site
  - ▭ Temporary Laydown Area

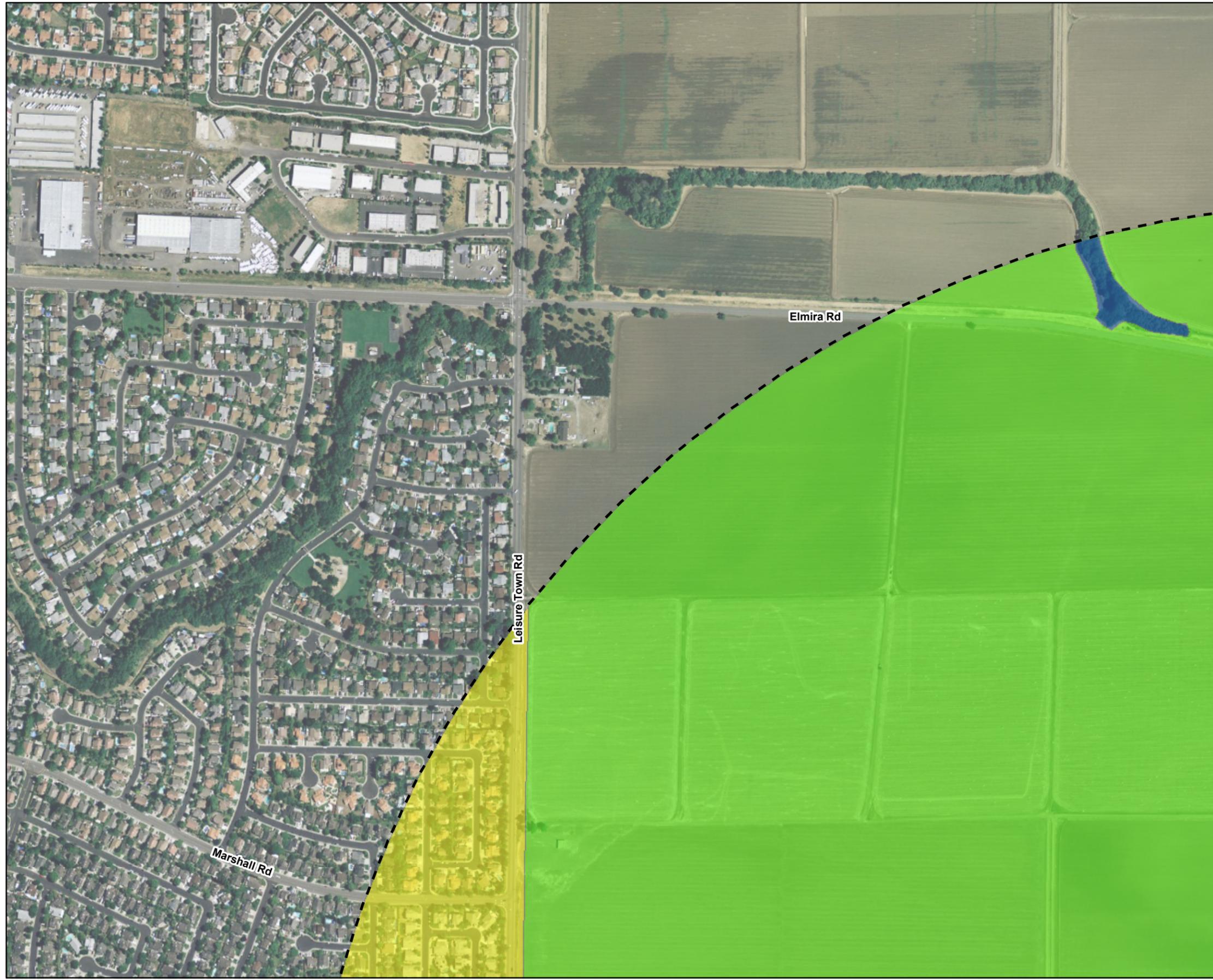
- Habitat Type**
- Agriculture
  - Canal
  - Commercial
  - Commercial Recreational
  - Industrial
  - Railroad Right-of-Way
  - Residential
  - Riparian/Woodland
  - School
  - Water/Creek

Notes:  
 1. Source - Field Survey done by Michael Clary, Biologist, CH2M HILL, May 2008.

This map was compiled from various scale source data and field maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2**  
**HABITAT TYPES WITHIN ONE MILE**  
**OF THE CPVVS SITE**  
 CPV VACA STATION  
 VACAVILLE, CA



**LEGEND**

**Biological Resources Within One Mile of Site Plants**

- ⊙ two-fork clover
- legenere

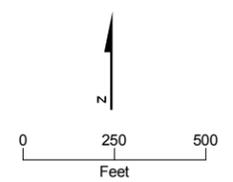
**Animals**

- CNDDDB Occurrences
- ▲ Observed Special-status Species
- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- ▨ New Substation
- ▨ Laydown Area
- ▭ Project Site

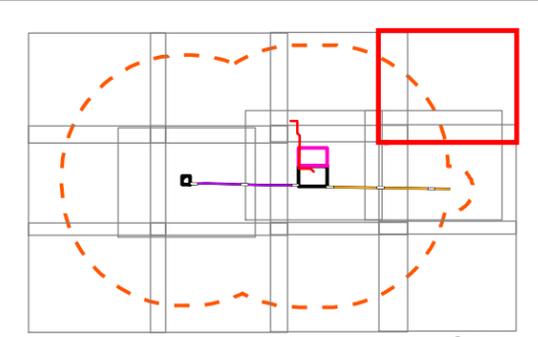
**Vegetation Communities and Habitat Types**

- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2a**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA



**LEGEND**

**Biological Resources Within One Mile of Site**

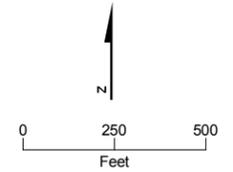
- Plants
  - ⊙ two-fork clover
  - legenera
- Animals
  - CNDDDB Occurrences
  - ▲ Observed Special-status Species
- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route

- ▨ New Substation
- ▨ Laydown Area
- ▭ Project Site

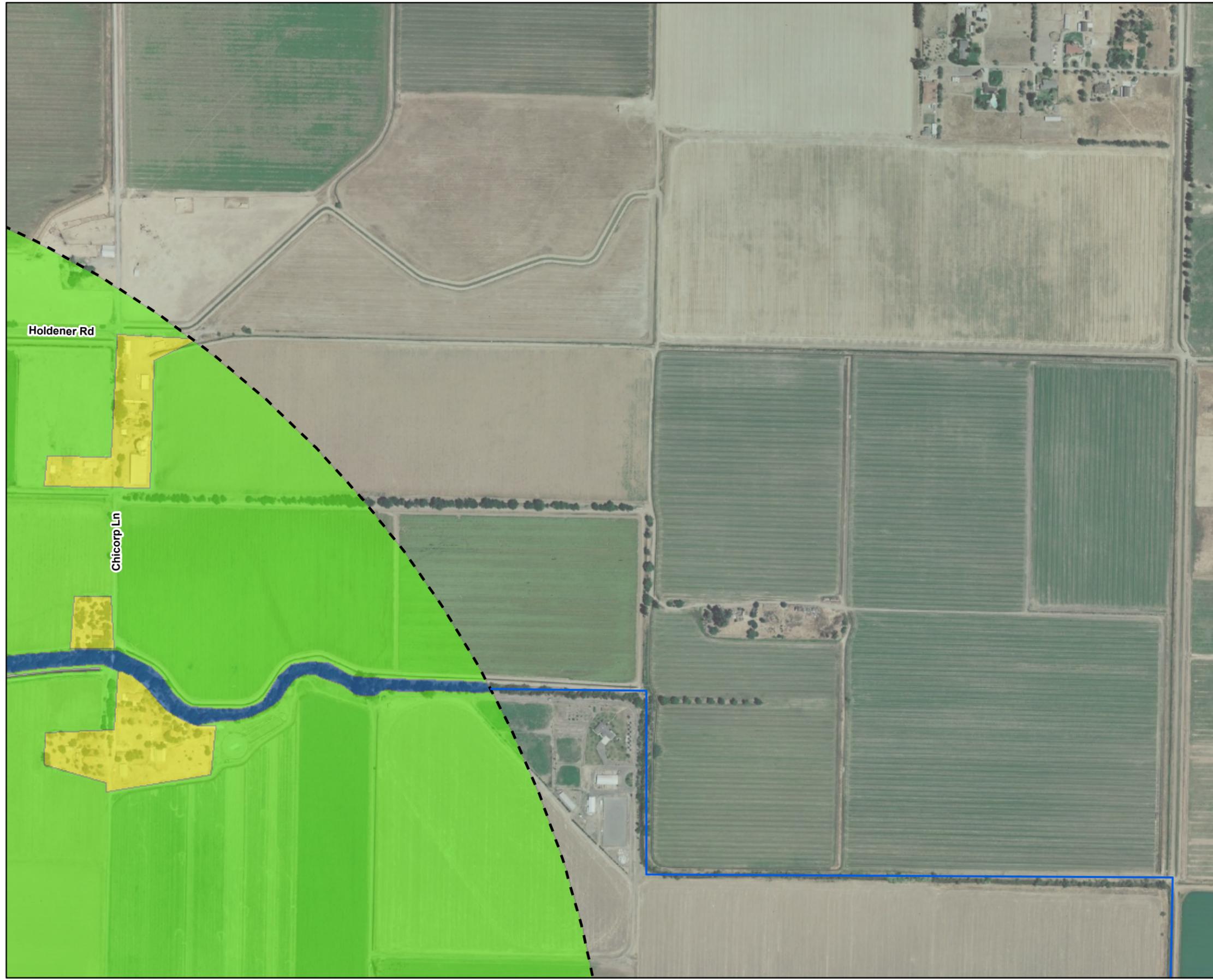
**Vegetation Communities and Habitat Types**

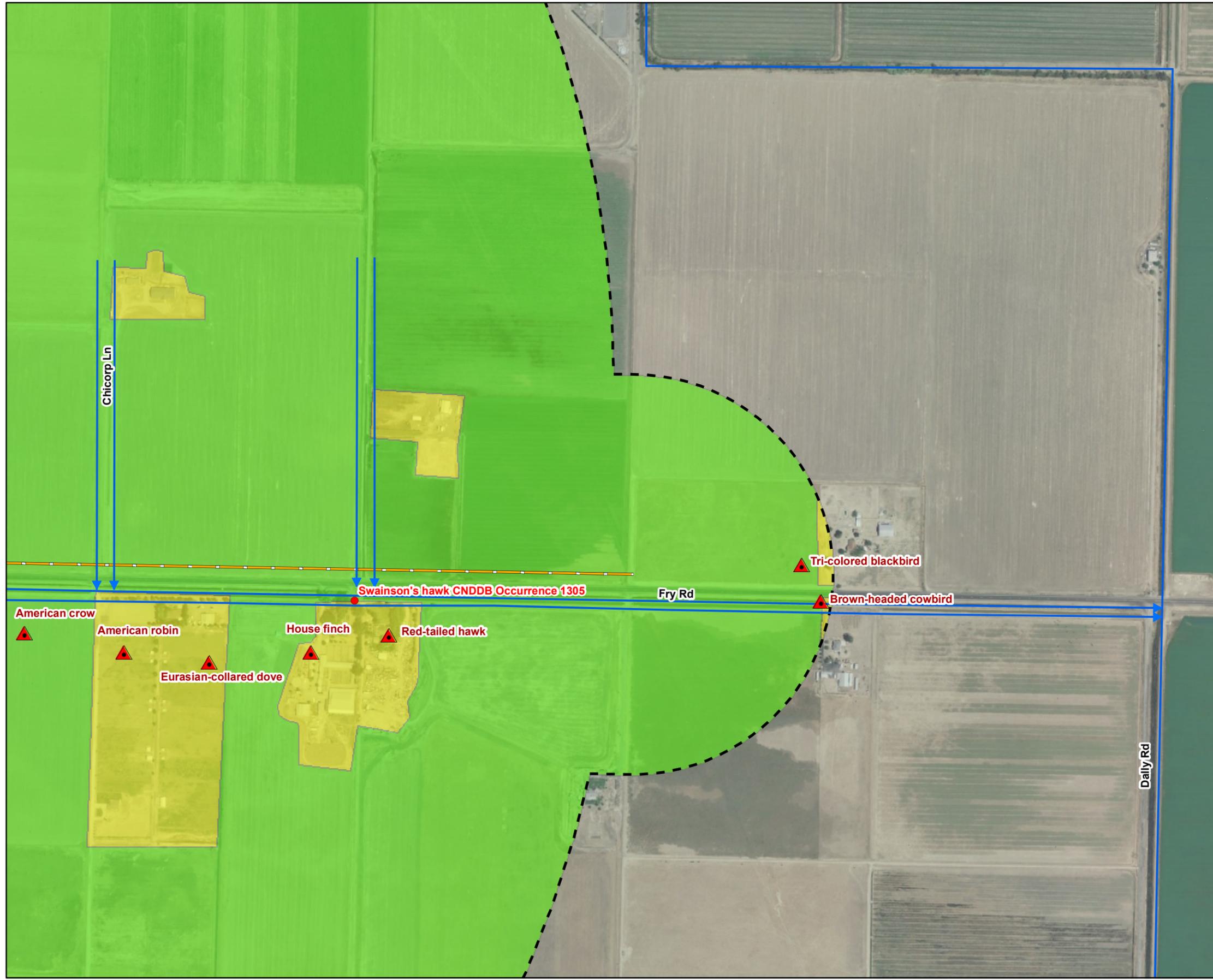
- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2b**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA





**LEGEND**

**Biological Resources Within One Mile of Site**

**Plants**

- ⊙ two-fork clover
- legenera

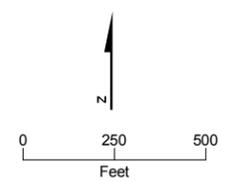
**Animals**

- CNDDDB Occurrences
- ▲ Observed Special-status Species
- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- ▨ New Substation
- ▨ Laydown Area
- ▭ Project Site

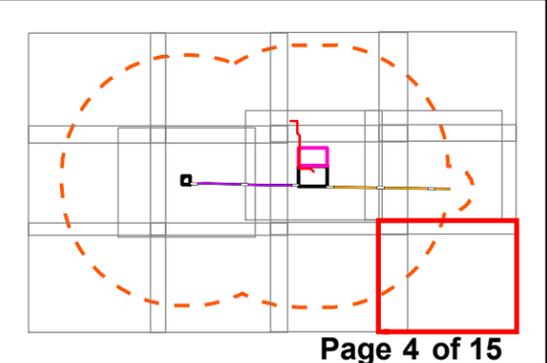
**Vegetation Communities and Habitat Types**

- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2c**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA



**LEGEND**

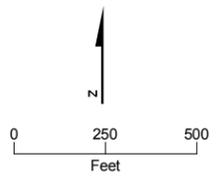
**Biological Resources Within One Mile of Site**

- Plants
  - ⊙ two-fork clover
  - legenere
- Animals
  - CNDDDB Occurrences
  - ▲ Observed Special-status Species
- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- ▨ New Substation
- ▨ Laydown Area
- ▭ Project Site

**Vegetation Communities and Habitat Types**

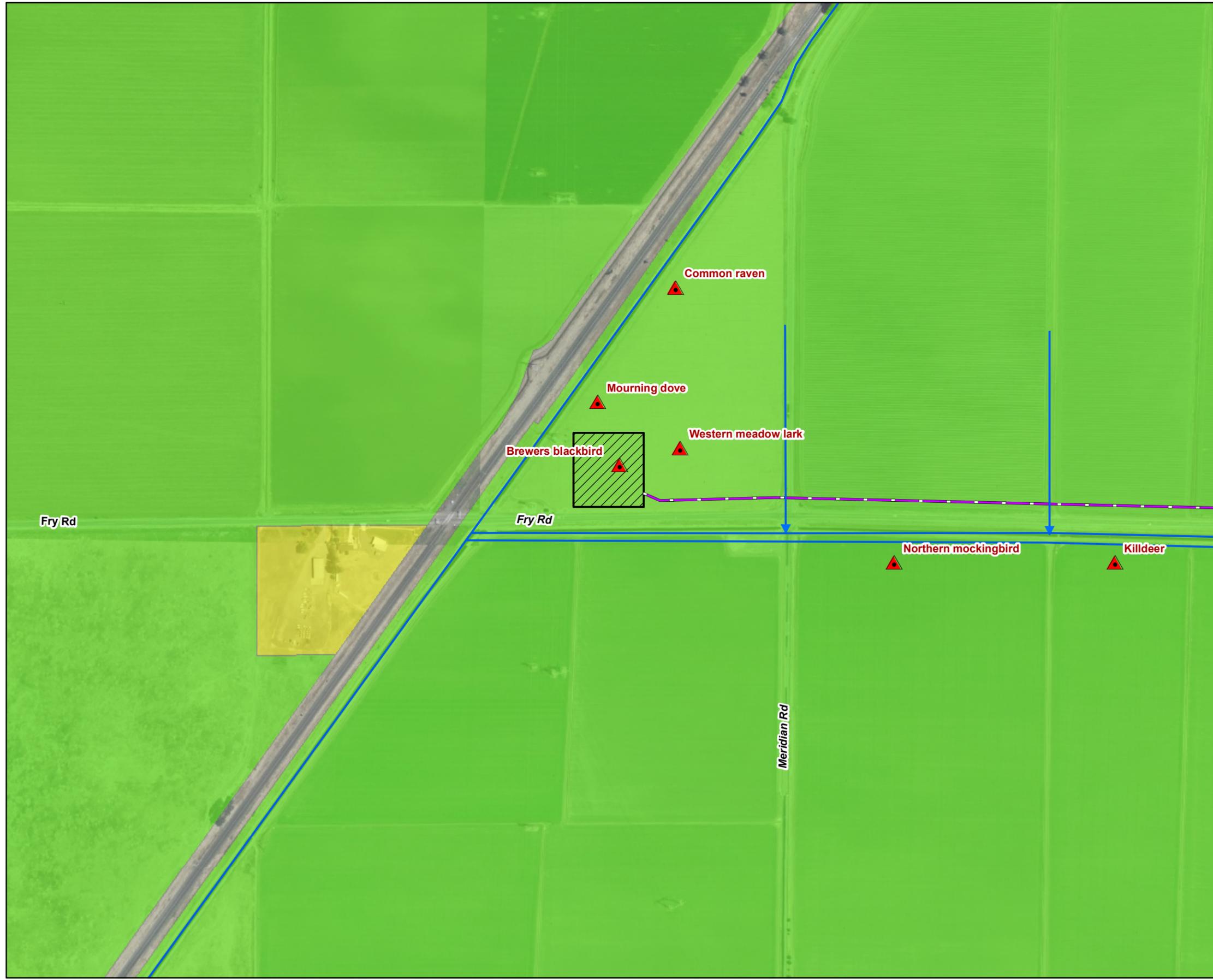
- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2d**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA





**LEGEND**

**Biological Resources Within One Mile of Site**

Plants

- ⊙ two-fork clover
- legenere

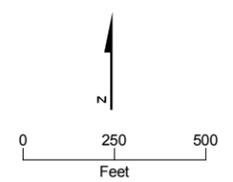
Animals

- CNDDDB Occurrences
- ▲ Observed Special-status Species
- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- ▨ New Substation
- ▨ Laydown Area
- Project Site

**Vegetation Communities and Habitat Types**

- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2e**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA



**LEGEND**

**Biological Resources Within One Mile of Site**

**Plants**

- two-fork clover
- legenere

**Animals**

- CNDDDB Occurrences
- Observed Special-status Species

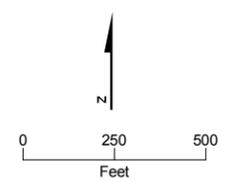
**Infrastructure**

- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- New Substation
- Laydown Area
- Project Site

**Vegetation Communities and Habitat Types**

- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

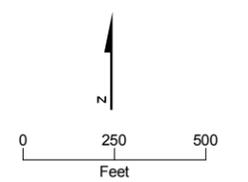


**FIGURE 5.2-2f**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA

**LEGEND**  
**Biological Resources Within One Mile of Site**

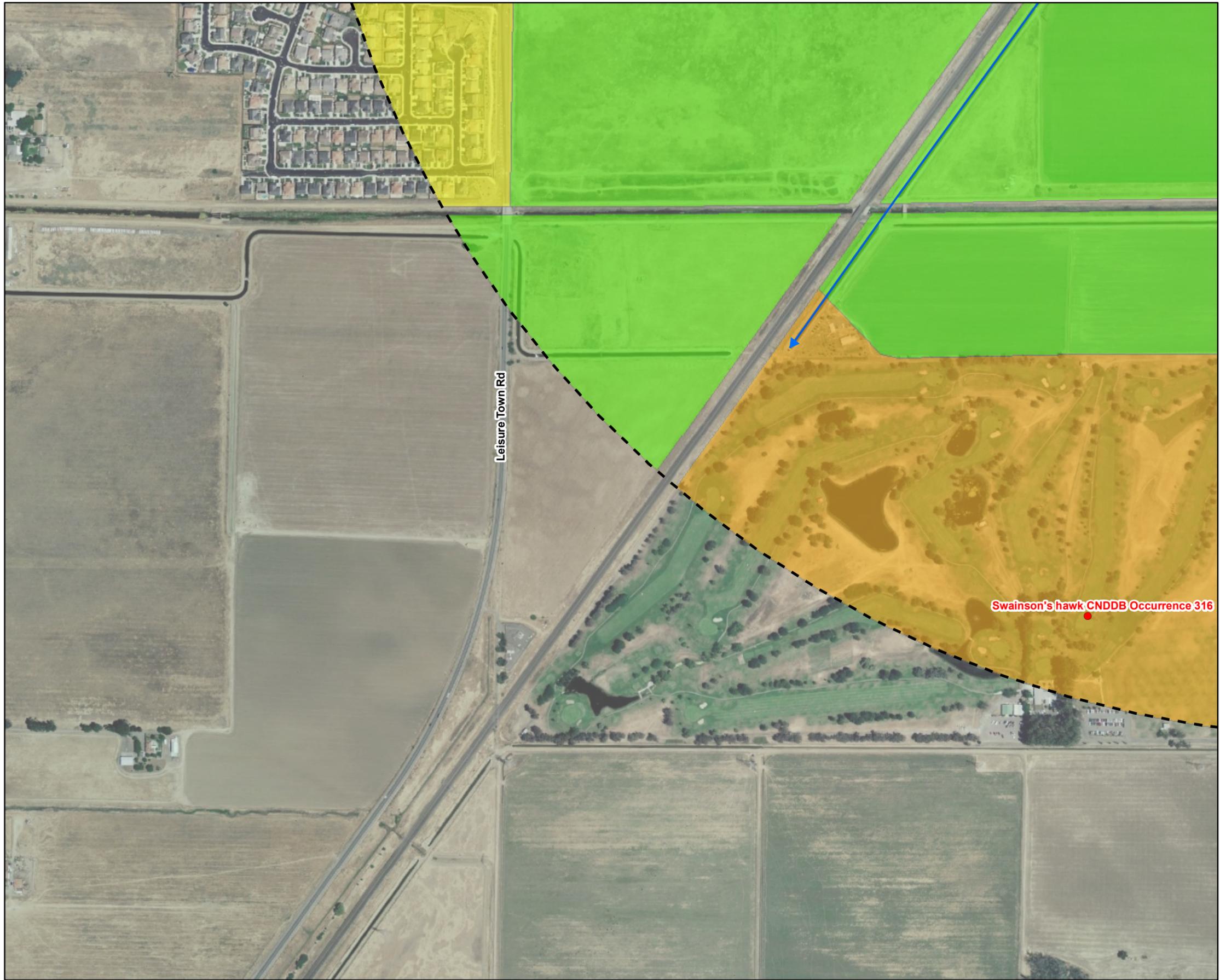
- Plants**
- ⊙ two-fork clover
  - legenere
- Animals**
- CNDDDB Occurrences
  - ▲ Observed Special-status Species
- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- ▨ New Substation
- ▨ Laydown Area
- ▭ Project Site
- Vegetation Communities and Habitat Types**
- Agriculture
  - Commercial/Recreational/Industrial/School
  - Residential
  - Riparian Woodland
  - Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2g**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA





**LEGEND**

**Biological Resources Within One Mile of Site Plants**

- ⊙ two-fork clover
- legenera

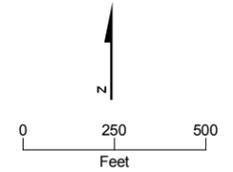
**Animals**

- CNDDDB Occurrences
- ▲ Observed Special-status Species
- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- ▨ New Substation
- ▨ Laydown Area
- ▭ Project Site

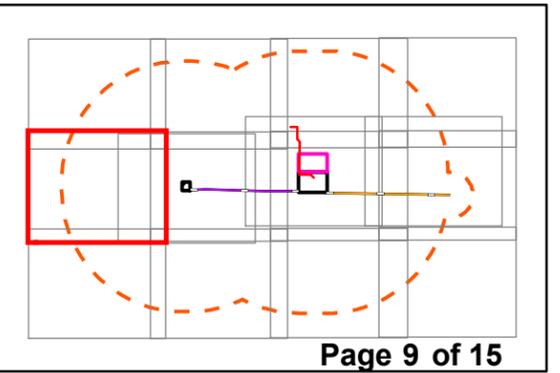
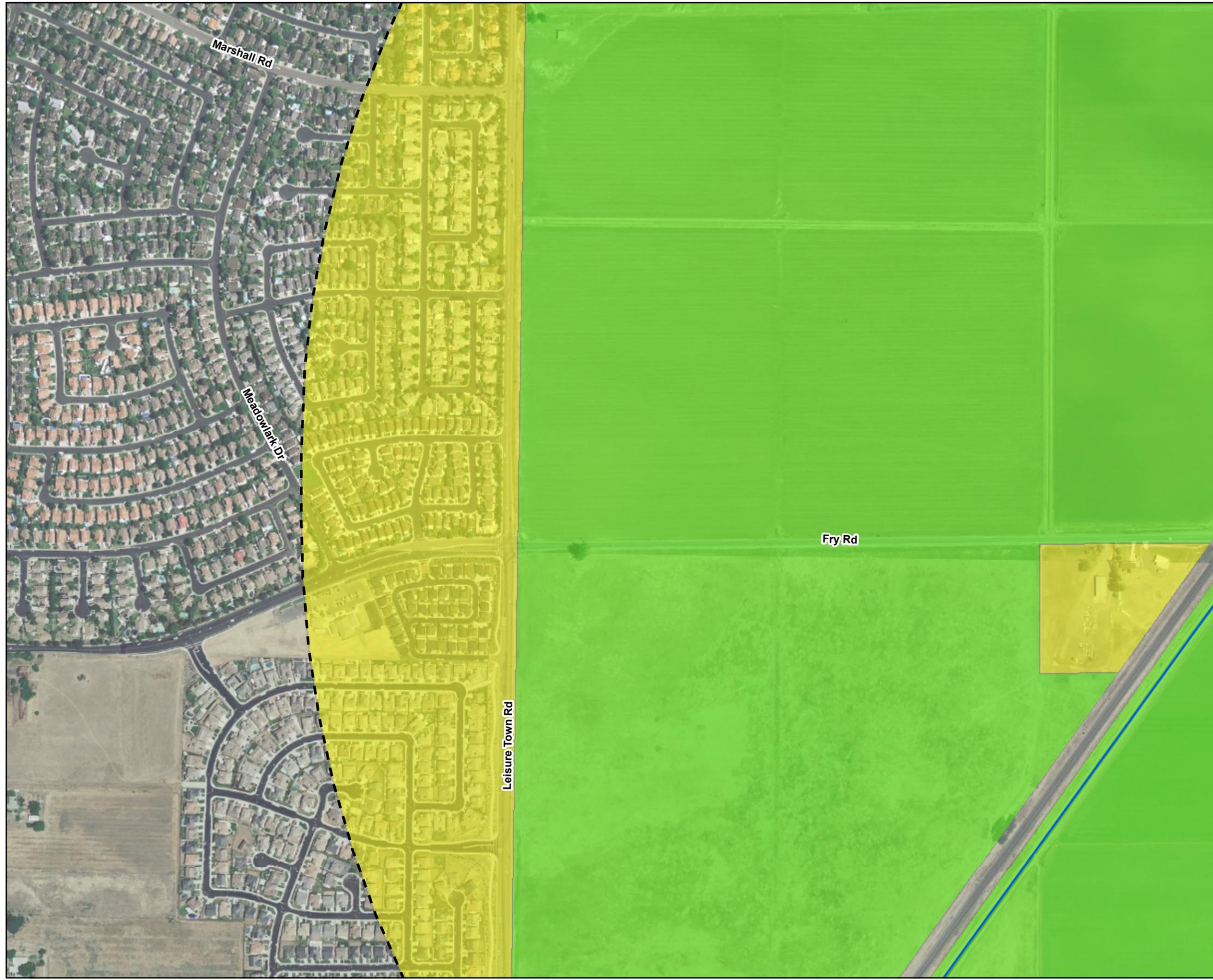
**Vegetation Communities and Habitat Types**

- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.

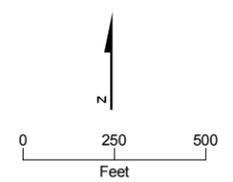


**FIGURE 5.2-2h**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA

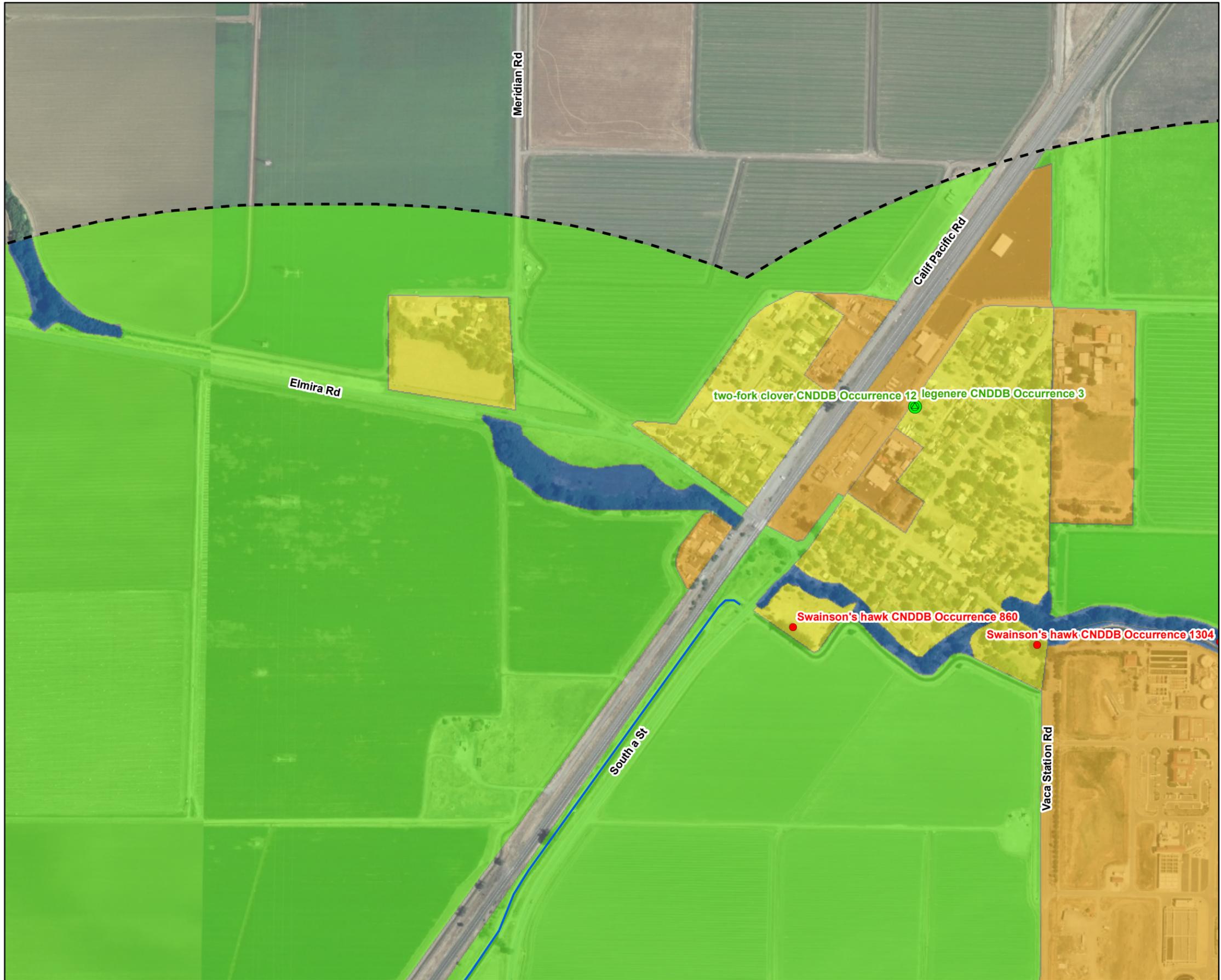


- LEGEND**
- Biological Resources Within One Mile of Site**
- Plants**
- ⊙ two-fork clover
  - legenere
- Animals**
- CNDDDB Occurrences
  - ▲ Observed Special-status Species
- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- ▨ New Substation
- ▨ Laydown Area
- ▭ Project Site
- Vegetation Communities and Habitat Types**
- Agriculture
  - Commercial/Recreational/Industrial/School
  - Residential
  - Riparian Woodland
  - Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2i**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA



**LEGEND**

**Biological Resources Within One Mile of Site**

**Plants**

- ⊙ two-fork clover
- legenere

**Animals**

- CNDDB Occurrences
- ▲ Observed Special-status Species

**Drainage**

- Drainage

**Utility Corridor to WWTP**

- Utility Corridor to WWTP

**Natural Gas Pipeline Route**

- Natural Gas Pipeline Route

**Electrical Transmission Line Route**

- Electrical Transmission Line Route

**New Substation**

- ▨ New Substation

**Laydown Area**

- ▨ Laydown Area

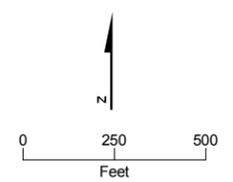
**Project Site**

- ▭ Project Site

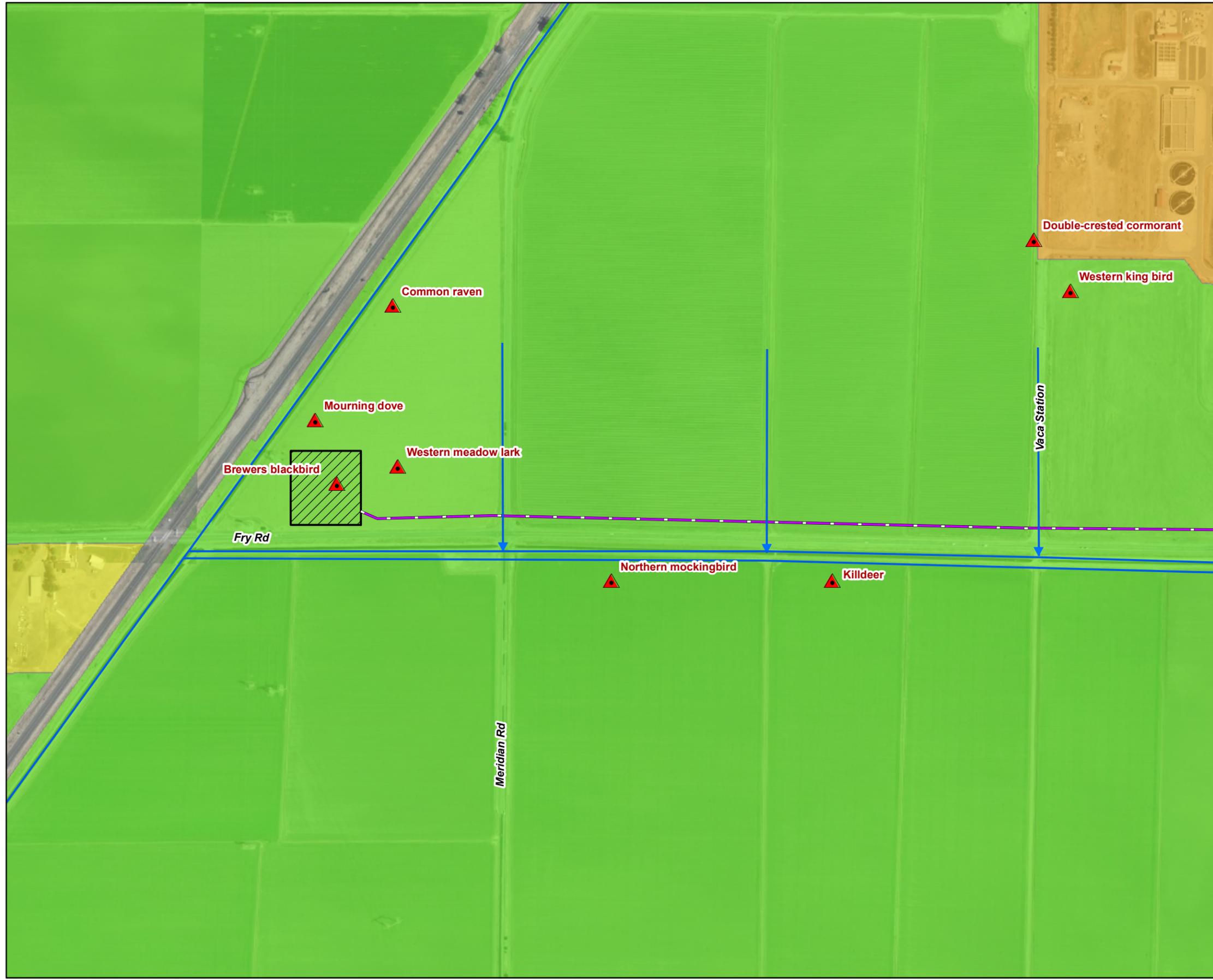
**Vegetation Communities and Habitat Types**

- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2j**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA



**LEGEND**

**Biological Resources Within One Mile of Site**

Plants

- ⊙ two-fork clover
- legenera

Animals

- CNDDDB Occurrences
- ▲ Observed Special-status Species

→ Drainage

— Utility Corridor to WWTP

— Natural Gas Pipeline Route

— Electrical Transmission Line Route

▨ New Substation

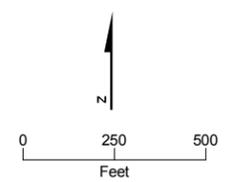
▨ Laydown Area

▭ Project Site

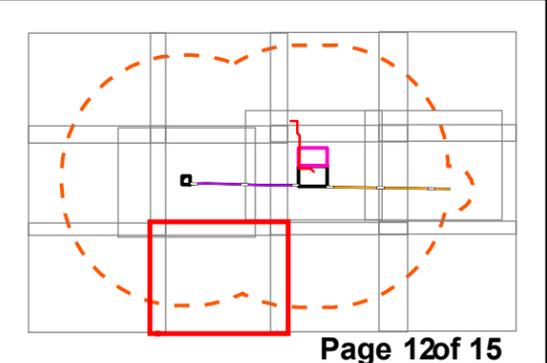
**Vegetation Communities and Habitat Types**

- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



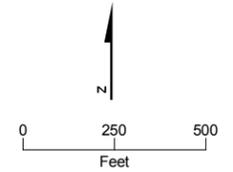
**FIGURE 5.2-2k**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA



**LEGEND**  
**Biological Resources Within One Mile of Site**

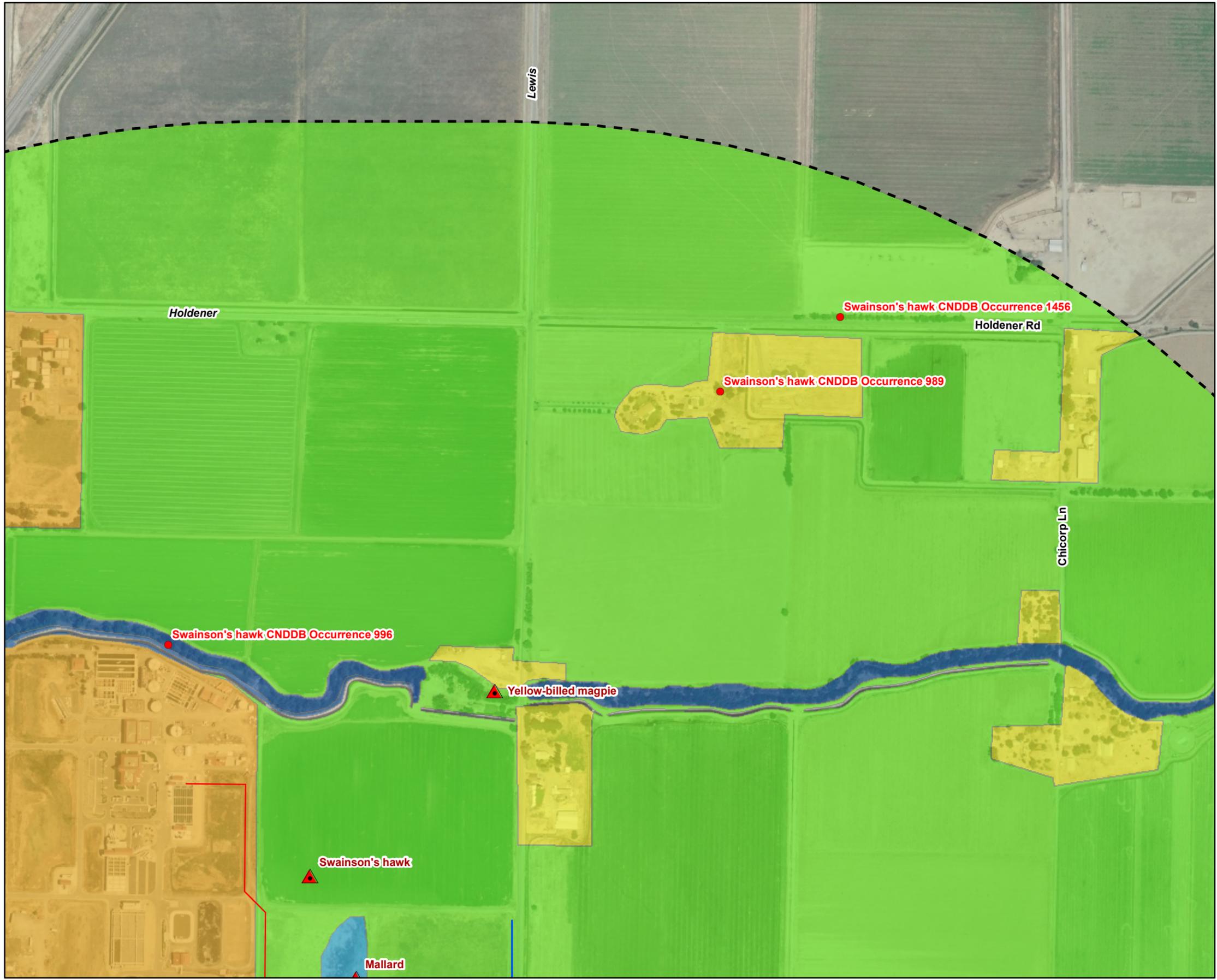
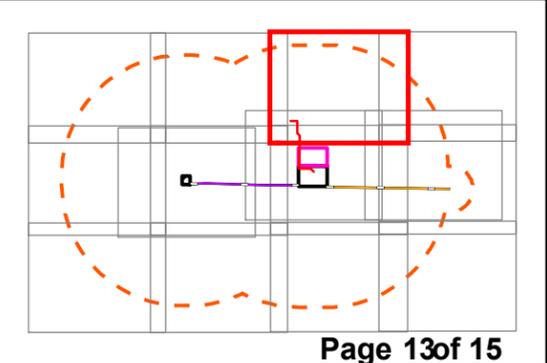
- Plants**
- ⊙ two-fork clover
  - legenere
- Animals**
- CNDDDB Occurrences
  - ▲ Observed Special-status Species
- Infrastructure**
- Drainage
  - Utility Corridor to WWTP
  - Natural Gas Pipeline Route
  - Electrical Transmission Line Route
- Development**
- ▨ New Substation
  - ▨ Laydown Area
  - ▭ Project Site
- Vegetation Communities and Habitat Types**
- Agriculture
  - Commercial/Recreational/Industrial/School
  - Residential
  - Riparian Woodland
  - Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



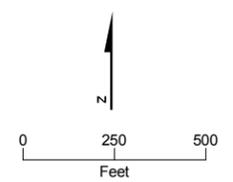
**FIGURE 5.2-21**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA



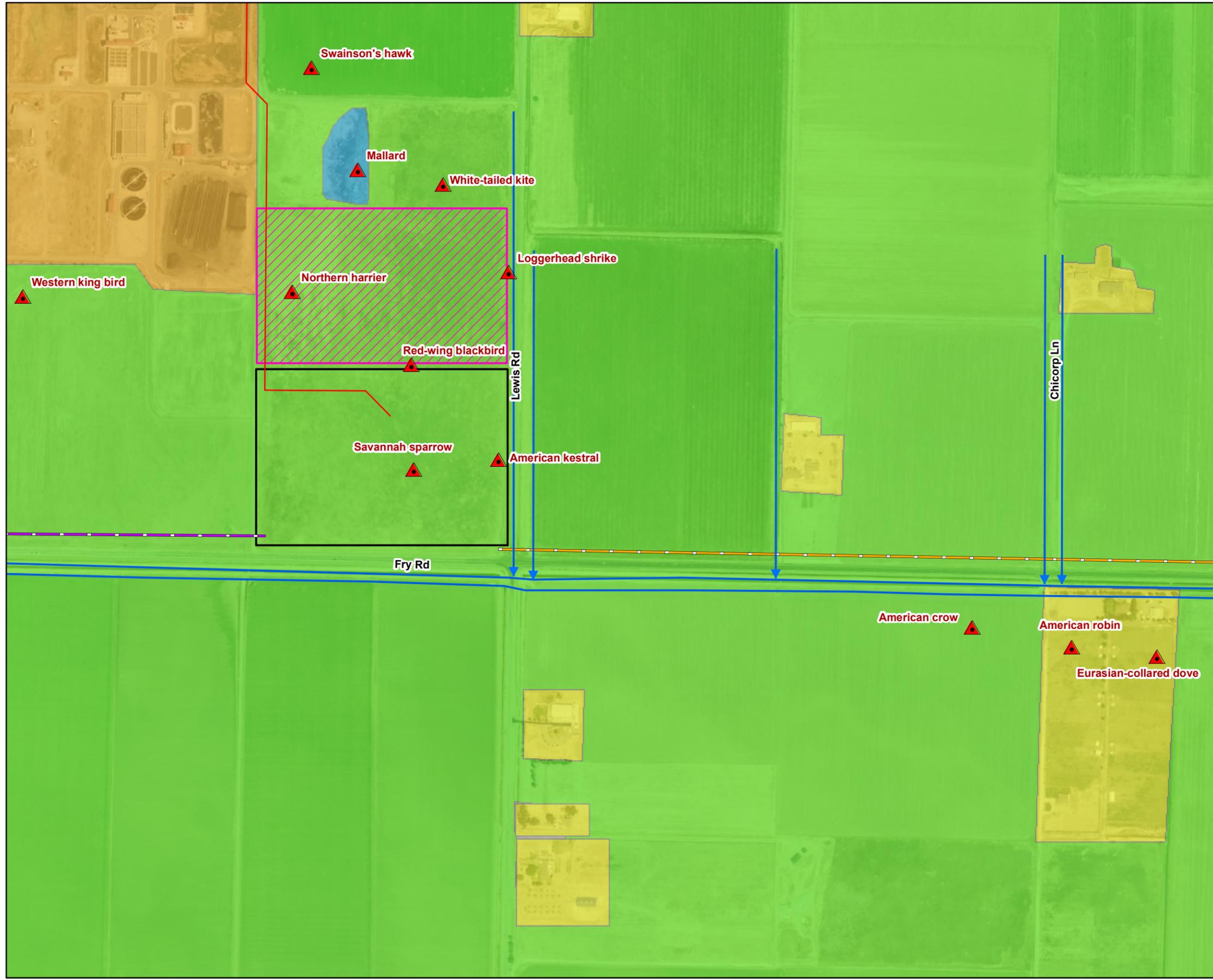


- LEGEND**
- Biological Resources Within One Mile of Site**
- Plants**
- ⊙ two-fork clover
  - legenere
- Animals**
- CNDDB Occurrences
  - ▲ Observed Special-status Species
  - Drainage
  - Utility Corridor to WWTP
  - Natural Gas Pipeline Route
  - Electrical Transmission Line Route
  - ▨ New Substation
  - ▨ Laydown Area
  - ▭ Project Site
- Vegetation Communities and Habitat Types**
- Agriculture
  - Commercial/Recreational/Industrial/School
  - Residential
  - Riparian Woodland
  - Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2m**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA



**LEGEND**

**Biological Resources Within One Mile of Site**

**Plants**

- ⊙ two-fork clover
- legenere

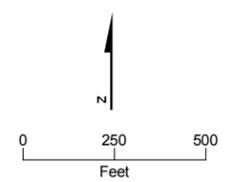
**Animals**

- CNDDDB Occurrences
- ▲ Observed Special-status Species
- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- ▨ New Substation
- ▨ Laydown Area
- ▭ Project Site

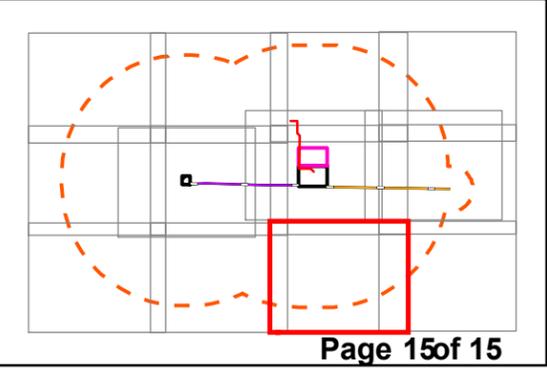
**Vegetation Communities and Habitat Types**

- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-2n**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA



**LEGEND**

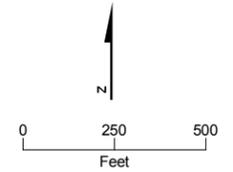
**Biological Resources Within One Mile of Site**

- Plants
  - ⊙ two-fork clover
  - legenere
- Animals
  - CNDDDB Occurrences
  - ▲ Observed Special-status Species
- Drainage
- Utility Corridor to WWTP
- Natural Gas Pipeline Route
- Electrical Transmission Line Route
- ▨ New Substation
- ▨ Laydown Area
- ▭ Project Site

**Vegetation Communities and Habitat Types**

- Agriculture
- Commercial/Recreational/Industrial/School
- Residential
- Riparian Woodland
- Water/Creek

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



**FIGURE 5.2-20**  
**VEGETATION COMMUNITIES**  
**AND HABITAT TYPES**  
**WITHIN ONE MILE SURVEY AREA**  
 CPV VACA STATION  
 VACAVILLE, CA



including black mustard (*Brassica nigra*), wild radish (*Raphanus sativa*), and milk thistle (*Silybum marianum*). Subsequent to field surveys, the CPVVS facility and construction laydown areas were disked and the associated vegetation was removed; however, these areas continue to provide foraging and/or nesting habitat for special-status birds and bats such as northern harrier (*Circus cyaneus*), white-tailed kite, American kestrel (*Falco sparverius*), and western red bat (*Lasiurus blossevillii*). No trees are present within the CPVVS facility and construction laydown areas; however, trees that provide suitable nesting habitat for Swainson's hawk, white-tailed kite, and other protected bird and bat species are present in the riparian woodland associated with Alamo Creek, 0.18 mile north of the temporary construction laydown area.

A shallow basin, constructed sometime after 1997 as an area for drying sludge for later transport off site, is located more than 30 feet north of the temporary construction laydown area. The basin is no longer used as a sludge drying area, but is still bound on all sides by a constructed berm that hydrologically separates it from the CPVVS and construction laydown sites. The NWI characterizes this basin as artificially and permanently flooded palustrine wetlands, but no artificial or permanent water source currently supplies this area (EWTP, 2008). During field surveys, vegetation in this basin was composed of weedy plant species similar to those observed within the CPVVS site and construction laydown area, with the lowest elevations of the basin shallowly ponded and unvegetated. Although currently disked, this basin may seasonally pond water for a sufficient period to provide habitat for federally listed vernal pool branchiopod species, and waterfowl including mallard (*Anas platyrhynchos*) and killdeer (*Charadrius vociferus*) have been observed in this basin. This basin is not hydrologically connected to Waters of the U.S., and does not possess hydric soils; therefore, it is not a U.S. Army Corps of Engineers (USACE) jurisdictional or non-jurisdictional wetland (See Routine Wetland Determination Data Form, Appendix 5.2F). The CPVVS project will not adversely affect the sludge basin, and no additional wetlands are located within 250 feet of the project site.

#### 5.2.1.5.5 Substation and Electrical Transmission Line

The proposed new substation and 230-kV transmission line between the substation and the CPVVS are located within an area zoned for agriculture (A40). The proposed substation is approximately 150 feet southeast of the Dally Main irrigation canal, and is hydrologically separated from the canal. Except for locations that would cross existing roads and associated drainage ditches, the substation and 230-kV transmission line would be placed entirely within active and inactive agriculture areas (Figure 5.2-2). The inactive agricultural areas are east of Vaca Station Road, adjacent and similar to the disked CPVVS and construction laydown sites discussed previously. Active agricultural areas are located west of Vaca Station Road and are planted in grain and alfalfa for hay production. These agriculture areas are prime forage habitat for Swainson's hawk, other local raptors, and bats.

#### 5.2.1.5.6 Natural Gas Pipeline

The natural gas pipeline between the CPVVS and the PG&E transmission pipeline would be within an area zoned for agriculture (A40). Except for locations that would cross existing roads and drainage ditches, the natural gas pipeline would be placed within active agriculture fields, primarily pasture and row crops, located east of Lewis Road. These areas provide foraging habitat for Swainson's hawk and other birds protected by the MBTA, as well as bats. A Swainson's hawk nest is reported in the CNDDDB within 250 feet of the

natural gas pipeline, and tricolored blackbird were observed flying over this area. Agricultural drains and adjacent areas that will be crossed by the natural gas pipeline may provide suitable aquatic and upland foraging habitat for giant garter snake.

#### 5.2.1.6 Sensitive and Special-status Plant Species

As discussed above, the regional special-status plant species lists (Table 5.2A-1a in Appendix 5.2A) was evaluated against observed conditions and the results of botanical surveys to develop a list of species with potential to occur within the CPVVS 1-mile survey area. This list includes regulatory status, habitat requirements, occurrence determination, and a rationale for the occurrence determination. Figures 5.2-3 and 5.2-4 show the previously recorded locations of special-status plant species within 1- and 10-mile radiuses, respectively, of the CPVVS site.

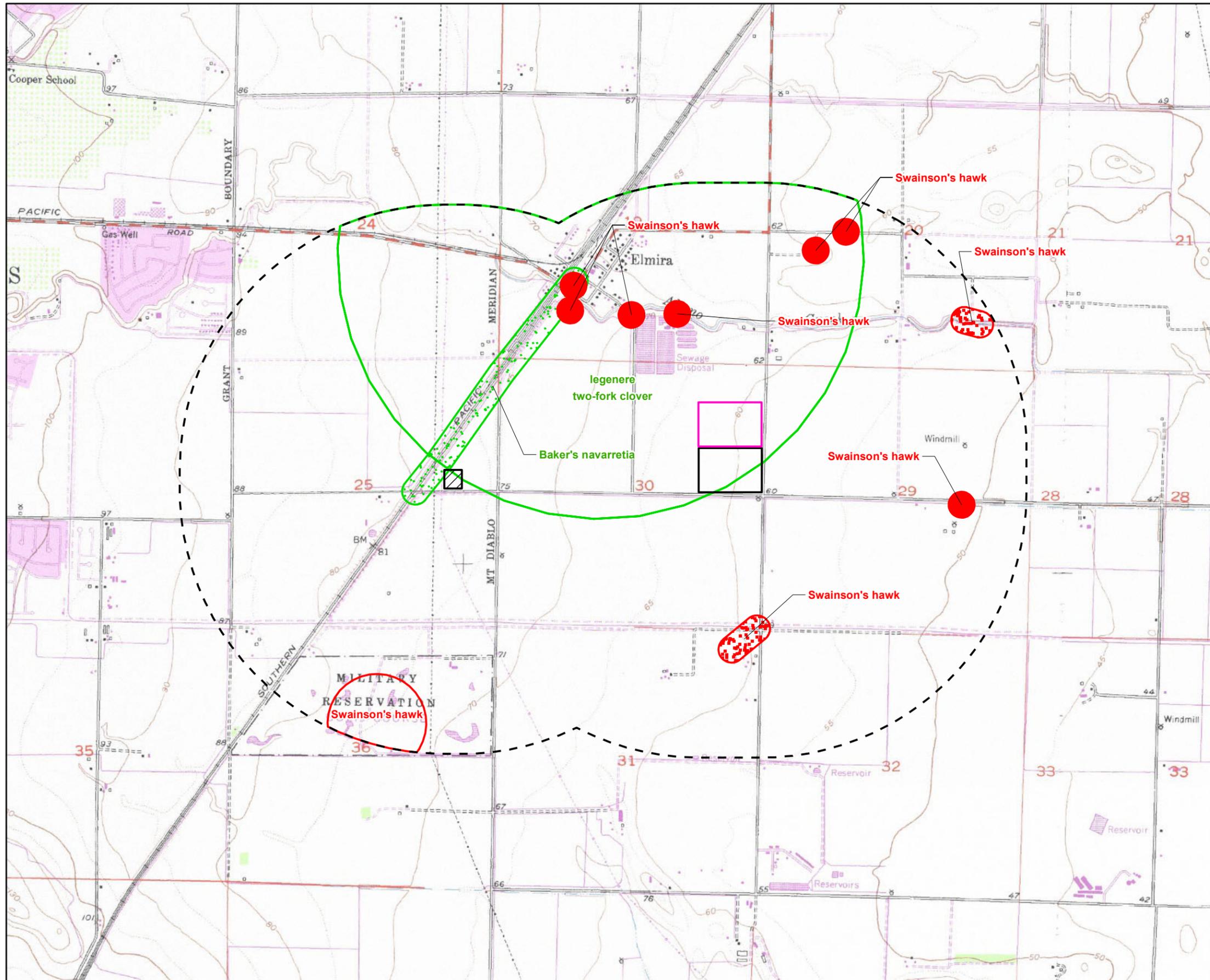
Of 62 special-status plant species determined during the pre-field investigation to have potential to occur within the region, field surveys determined that 34 of these have potential to occur within the CPVVS 1-mile survey area (See Table 5.2A-2a in Appendix 5.2A). Observed, reported, or special-status plant species that have the potential to occur within the CPVVS 1-mile survey area, are known to occur in valley oak riparian, agricultural, vernal pool, or freshwater marsh plant communities, all of which are known to be present, or may be present within inaccessible private parcels, within the CPVVS 1-mile survey area. Of the 34 special-status plant species determined to have potential to occur within the CPVVS 1-mile survey area, none were observed during surveys or previously reported within the CPVVS site, including the CPVVS facility, west substation, electrical transmission line, and natural gas pipeline (Table 5.2A-2a in Appendix 5.2A)

All habitats within the CPVVS site have been previously altered, and there are no natural plant communities within areas of ground disturbance for the CPVVS main facility site, the construction laydown area, the 230-kV transmission line, or the natural gas pipeline. Based on the results of field surveys for rare plants, it is unlikely that special-status plant species occur within the CPVVS construction disturbance areas. The CPVVS botanical survey results are provided in Appendix 5.2E.

#### 5.2.1.7 Sensitive or Special-Status Wildlife Species

During field surveys, the regional special-status wildlife species list was evaluated against observed conditions to develop a list of species with potential to occur within the CPVVS 1-mile survey area. Table 5.2A-1a in Appendix 5.2A lists sensitive and special-status wildlife species determined during the pre-field investigation to have potential to occur within the region, and Table 5.2A-2b in Appendix 5.2A lists sensitive and special-status wildlife species determined during field surveys to have potential to occur within the CPVVS 1-mile survey area. Each table lists species, their regulatory status, habitat requirements, occurrence potential determination, and a rationale for the occurrence determination within the respective area. Observed, reported, or special-status wildlife species that have the potential to occur within the region and CPVVS 1-mile survey area are known or have potential to occur in agricultural, valley oak riparian, valley needlegrass grassland, vernal pool, or freshwater marsh plant communities.

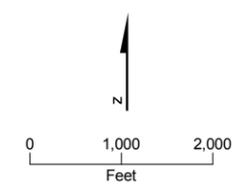
Table 5.2-2 (located at the end of this section due to its length) lists species with potential to occur within the CPVVS site, their regulatory status, habitat requirements, occurrence



- LEGEND**
- Laydown Area
  - Project Site
  - New Substation
  - One Mile Buffer
- CNDDDB Data**
- Plant (non-specific)
  - Plant (circular)
  - Animal (80m)
  - Animal (specific)
  - Animal (circular)

**Notes:**  
 1. Source - California Dept. of Fish and Game, California Natural Diversity Database (CNDDDB) April, 2008.

This map was compiled from various scale source data and maps and is intended for use as only an approximate representation of actual locations.



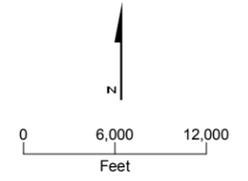
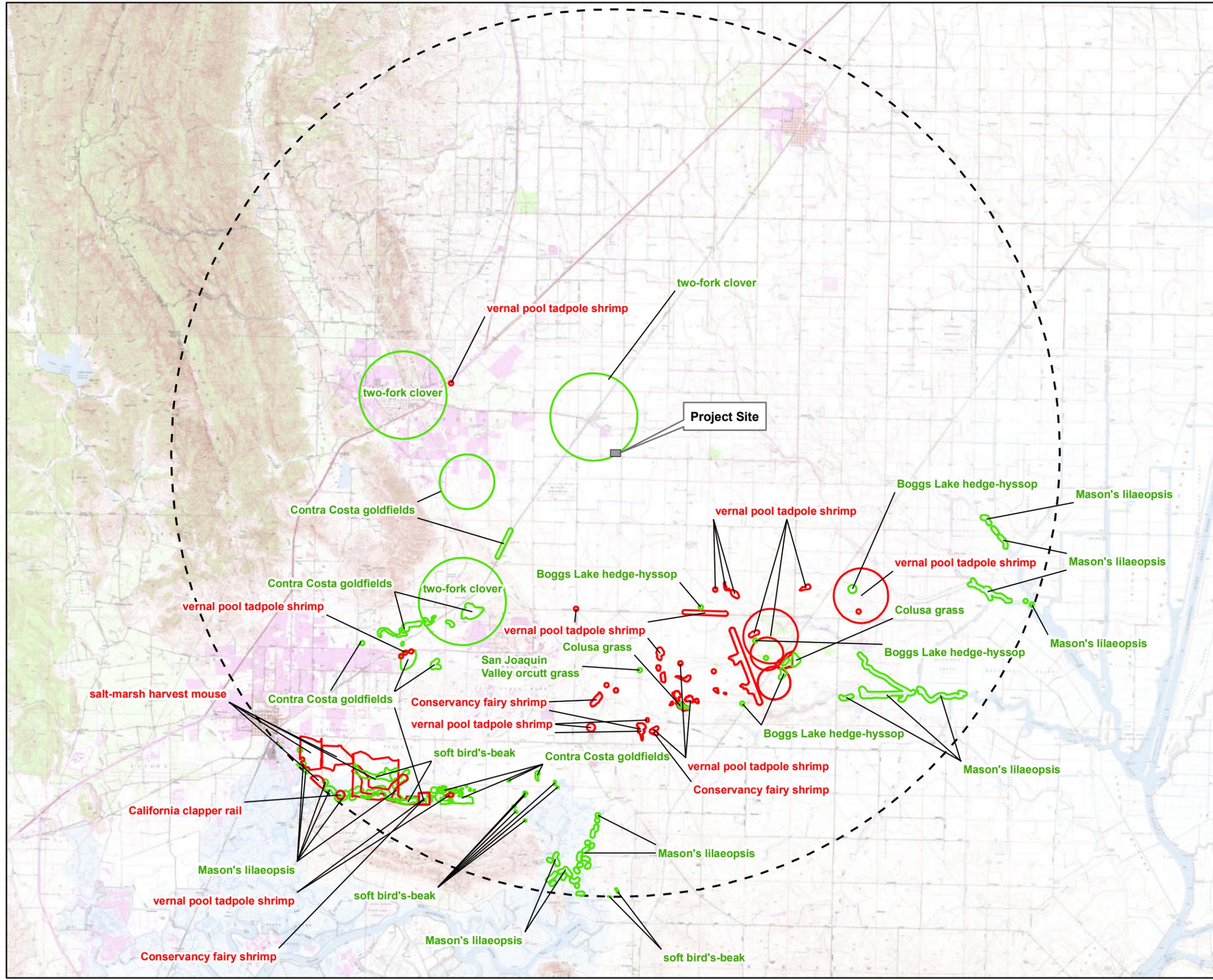
**FIGURE 5.2-3  
 BIOLOGICAL RESOURCES WITHIN  
 ONE MILE OF PROJECT**  
 CPV VACA STATION  
 VACAVILLE, CA

LEGEND

-  Project Site
-  Ten Mile Buffer
- RARE AND ENDANGERED SPECIES**
-  Plant
-  Animal

Notes:

1. Area of interest subject to change.
2. Rare and Endangered Species - California Dept. of Fish and Game, California Natural Diversity Database (CNDDB) April, 2008.



**FIGURE 5.2-4**  
**RARE AND ENDANGERED SPECIES**  
**WITHIN TEN MILES OF SITE**  
 CPV VACA STATION  
 VACAVILLE, CA

potential determination, and a rationale for the occurrence determination. Observed, reported, or special-status wildlife species that have the potential to occur within the CPVVS site are known or have potential to occur in active or inactive agricultural habitats. No valley oak riparian, valley needlegrass grassland, vernal pool, or freshwater marsh plant communities are present in the CPVVS site.

Each of the sensitive or special-status wildlife species with potential to occur in the CPVVS site can be categorized under one or more of the following regulatory authorities and/or sensitive status categories: the federal MBTA, the Bald and Golden Eagle Protection Act (BGEPA), ESA, CESA, State Fully Protected Species, State Species of Special Concern, and State Special Animals. These categories are discussed in the following subsections. Several of these wildlife species with potential to occur in the CPVVS site are protected under multiple regulatory authorities, and nine of these are addressed in the Draft Solano MHCP.

#### 5.2.1.7.1 Migratory Bird Treaty Act

Each of the 139 special-status bird species determined to have potential to occur on the CPVVS site (Table 5.2-2) are protected under the MBTA, including Swainson's hawk, northern harrier, and white-tailed kite. The MBTA protects all migratory birds, including nests and eggs.

#### 5.2.1.7.2 Bald and Golden Eagle Protection Act

One bird species with potential to occur on the CPVVS site, golden eagle (*Aquila chrysaetos*), is protected under the federal BGEPA. The BGEPA specifically protects bald and golden eagles from harm or trade in parts of these species. Golden eagles are also protected under the MBTA and are a state fully protected species.

No nesting or foraging habitat for bald eagles is present within 10 miles of the CPVVS site, and bald eagles have not been reported in the project region; however, golden eagle foraging habitat is present in the region and within the CPVVS site. No suitable golden eagle nesting habitat is present at the site, and no golden eagles were observed during field surveys.

Habitat for golden eagles is typically rolling foothills, mountain areas and desert. Golden eagles need open terrain for hunting and prefer grasslands, deserts, savannah, and early successional stages of forest and shrub habitats. This species prefers to nest in rugged, open habitats with canyons and escarpments, with overhanging ledges and cliffs and large trees used as cover.

The nearest golden eagle occurrence reported in the CNDDDB (occurrence #40) is a nest observed in high cliffs 21 miles southwest of the CPVVS site.

#### 5.2.1.7.3 Federal Endangered Species Act

One reptile and two avian species in Table 5.2-2 are protected under the ESA. Giant garter snake, discussed below, is federally listed as threatened, and may possess suitable habitat in and near agricultural drains within the natural gas pipeline alignment. California brown pelican and California least tern are both federally listed as endangered, and are both also protected under the MBTA. Neither California brown pelican nor California least tern has suitable nesting or foraging habitat in or near the CPVVS site, as they both require open water and shoreline habitat for nesting and foraging.

### ***Giant Garter Snake***

No portion of the CPVVS project is within any areas currently identified as having high value habitat for the federally threatened giant garter snake; however, the eastern extent of the natural gas pipeline is within 0.25 mile of the giant garter snake USFWS designated mid-valley recovery unit. This unit extends from the American and Yolo Basins south to the City of Stockton.

The giant garter snake inhabits agricultural wetlands and other waterways such as irrigation canals, sloughs, ponds, small lakes, low gradient streams, and adjacent uplands in the Central Valley. Because of the direct loss of natural habitat, the giant garter snake relies heavily on rice fields in the Sacramento Valley, but also uses managed marsh areas in Federal National Wildlife Refuges and State Wildlife Areas. Habitat loss and fragmentation, flood control activities, changes in agricultural and land management practices, predation from introduced species, parasites, water pollution, and continuing threats are the main causes for the decline of this species (USFWS, 1999)

Potentially suitable garter snake habitat is present in several agricultural drains that run perpendicular to the natural gas pipeline alignment.

The nearest garter snake observation reported in the CNDDDB (occurrence #82) is approximately 9 miles to west of the CPVVS site in an agricultural canal with tules and cattail margins.

#### **5.2.1.7.4 California Endangered Species Act**

Two species with potential to occur in the CPVVS site are protected under CESA. Giant garter snake, a state-listed threatened species, may possess suitable habitat in and near agricultural drains within the natural gas pipeline alignment. Swainson's hawk, a state-listed threatened species and also protected under the MBTA, has nests reported in the CPVVS 1-mile survey area. Swainson's hawk has been observed during field surveys foraging in the CPVVS site.

#### ***Swainson's hawk***

The California population of breeding Swainson's hawks has declined by approximately 90 percent since the 1940s, presumably due to habitat loss; however, other factors, such as mortality in wintering areas in Central America may also play a major role. Swainson's hawks have adapted well to agricultural landscapes, which constitute a large portion of Solano County. Alfalfa is the crop that provides the best foraging habitat because of regular harvesting and irrigating that makes prey available for capture. Crops that decrease the accessibility of small rodent and insect prey (e.g., mature row crops with tall plants, vineyards, orchards) provide few foraging opportunities for Swainson's hawks. In addition to foraging habitat, Swainson's hawks require suitable nest sites, including the tops of trees along the edges of riparian areas, agricultural fields, and in open oak savannah. Nesting pairs are highly traditional in their use of nesting territories and nest trees, typically returning to the same nest site or immediate area every year.

The CPVVS project is within an area identified in the Draft Solano MHCP as an Irrigated Agriculture Conservation Area for Swainson's hawk. This area was identified by reviewing the known Swainson's hawk nesting distribution in the County, and mapping the primary or higher quality irrigated and non-irrigated agricultural lands and adjacent grasslands.

This area encompasses all of the irrigated, non-irrigated, and some grassland habitat in the northeastern and eastern portions of the Draft Solano MHCP Plan Area, and contains the majority of known Swainson's hawk records.

The CPVVS site contains suitable Swainson's hawk foraging habitat, and Swainson's hawk were observed foraging at the site during field surveys. No large trees are present within the project site that would provide suitable nesting habitat.

The nearest Swainson's hawk occurrence reported in the CNDDDB (occurrence #1303) was observed 0.5 mile north of the CPVVS site in a eucalyptus tree adjacent to an alfalfa field. Eight additional Swainson's hawk nests have been reported in the Alamo Creek riparian woodland and in other trees within the CPVVS 1-mile survey area.

#### 5.2.1.7.5 State Fully Protected Species

Five species with potential to occur at the CPVVS site are Fully Protected under the California Fish and Game Code, and are protected by the MBTA: white-tailed kite, peregrine falcon, California brown pelican, California least tern, and golden eagle. Golden eagle, California brown pelican, and California least tern were discussed under the regulatory authorities above. Peregrine falcon have no suitable nesting habitat within the CPVVS site; however, they may forage at the site or fly over the site while transitioning from suitable habitat located outside of the CPVVS site. White-tailed kite are discussed below.

##### *White-tailed kite*

The white-tailed kite is a California state fully protected species. Additionally, it is protected under the MBTA and several CDFG codes including 3503, 3503.5, and 3513. This species is a common to uncommon, apparently non-migratory, year-long resident in coastal and valley lowlands. It is rarely found away from agricultural areas, inhabiting herbaceous and open areas throughout cismontane California. White-tailed kites have extended their range and increased in number in recent decades.

The nearest white-tailed kite occurrence reported in the CNDDDB (occurrence #58) was a nest observed 3 miles north of the CPVVS site in a row of Osage oranges.

The CPVVS site contains suitable white-tailed kite foraging habitat, and white-tailed kite were observed foraging at the site during field surveys. Although no nests have been observed, suitable white-tailed kite nesting habitat occurs in large trees in the Alamo Creek riparian woodland. No suitable nesting trees are present within the project site.

#### 5.2.1.7.6 State Species of Special Concern

Twelve state species of special concern have potential to occur in the CPVVS site, 11 of which are also protected by the MBTA: American white pelican, northern harrier, mountain plover, western burrowing owl, short-eared owl, loggerhead shrike, saltmarsh common yellowthroat, yellow-breasted chat, grasshopper sparrow, Suisun song sparrow, tricolored blackbird, and western red bat. Northern harrier, western burrowing owl, loggerhead shrike, and western red bat have the potential to occur in the project area and are discussed below.

### ***Northern Harrier***

The northern harrier (*Circus cyaneus*) is a California state species of special concern. Additionally, it is protected under the MBTA and several CDFG codes including 3503, 3503.5, and 3513. This species occurs from annual grassland up to lodgepole pine and alpine habitats, but is most frequently found in meadows, grasslands, open rangelands, desert sinks, and emergent wetlands. A permanent resident of the northeastern plateau and coastal areas, it is a less common resident of the Central Valley. The California population has decreased in recent decades, but it can be locally abundant where suitable habitat remains free of disturbance. Destruction of wetland habitat, native grassland, and moist meadows, and burning and plowing of nesting areas during early stages of breeding cycle, are major reasons for the decline. Nests are built on the ground in shrubby vegetation, usually at marsh edge, but they may nest in grasslands, grain fields, or on sagebrush flats several miles from water.

The nearest northern harrier occurrence reported in the CNDDDB (occurrence #31) is a nest observed 12 miles southwest of the CPVVS site in coastal brackish marsh. The CPVVS site contains dense vegetation that would provide suitable northern harrier foraging and nesting habitat, and northern harrier were observed foraging and exhibiting nesting behavior in a narrow band of undisturbed vegetation along the west edge of the CPVVS site during field surveys. A CNDDDB form to report this observation has been completed and submitted to the CDFG.

If construction, including site clearance and grading, begins during the nesting season, this species can be expected to occur in any stand of vegetation that may have become established by that time.

### ***Western Burrowing Owl***

The western burrowing owl (*Athene cunicularia*) is a California state species of special concern. Additionally, it is protected under the MBTA and several CDFG codes including 3503, 3503.5, and 3513. This species is widespread throughout the western U.S., but has declined in Solano County and many other areas because of habitat modification, poisoning of its prey, and introduced nest predators. The western burrowing owl is diurnal and usually non-migratory in this portion of its range. This species is known to establish nests within abandoned burrows from ground squirrels and other wildlife. It can occur in much higher densities near agricultural lands where rodent and insect prey tend to be more abundant. The CPVVS site is within an area identified in the Draft Solano MHCP as providing potential western burrowing owl foraging habitat. Western burrowing owl conservation is tied to the preservation and management of open agricultural lands, similar to Swainson's hawk habitats, as well as the Valley Floor and Vernal Pool Grassland and lower-lying grassland communities associated with the Inner Coast Range Natural Community.

The nearest western burrowing owl occurrence reported in the CNDDDB (occurrence #962) was observed 1.5 miles north of the CPVVS site at the top of a drainage ditch adjacent to a fallow field and across a road from an alfalfa field.

No western burrowing owls or burrows were observed during field surveys conducted in the CPVVS project areas on June 13, 2008, following established survey protocols (CBOC, 1993). During the field surveys, the site was determined to lack burrows and be too heavily

vegetated to provide suitable nesting or forage habitat. Subsequent to the protocol surveys the site was disked, but while suitable nesting habitat is still absent it may now provide suitable western burrowing owl foraging habitat.

### ***Loggerhead Shrike***

The loggerhead shrike (*Lanius ludovicianus*) is a California state species of special concern. It is protected under the MBTA and CDFG codes. Loggerhead shrikes are common residents and winter visitors of California foothills and lowlands. This species can be found within open habitat types, including sage scrub, non-native grasslands, chaparral, riparian, croplands, and areas characterized by open scattered trees and shrubs. Fences, posts, or other potential perches are typically present. The loggerhead shrike forages for large insects and lizards over open ground within areas of short vegetation, usually impaling prey on thorns, wire barbs, or sharp twigs to cache for later feeding.

The nearest loggerhead shrike occurrence reported in the CNDDDB (occurrence #3) is a nest observed 26 miles southeast of the CPVVS site in an ornamental tree near an abandoned house.

The CPVVS site contains suitable loggerhead shrike foraging habitat, and loggerhead shrike were observed perched on power lines at the site. Several shrubs are present near the electrical transmission line and natural gas pipeline routes that could provide suitable loggerhead shrike nesting habitat.

### ***Western Red Bat***

Western red bat (*Lasiurus blossevillii*) is a California state species of concern, and is protected under CDFG codes. Several species in the genus *Lasiurus* are commonly referred to as tree bats because they roost only in tree foliage. This species is closely associated with cottonwoods in riparian areas at elevations below 6,500 feet. Especially favored roosts are found where leaves form a dense canopy above and branches do not obstruct the bats' flyway below. Western red bats are also known to roost in orchards, especially in the Sacramento Valley. Western red bats typically feed along forest edges, in small clearings, or around street-lights where they prefer moths. Although largely undocumented, desert red bats appear to have declined markedly in the West due to the loss of lowland riparian forests.

The nearest western red bat occurrence reported in the CNDDDB (occurrence #69) was detected 14 miles south of the CPVVS site in a narrow riparian area.

The CPVVS site contains suitable western red bat foraging habitat. No western red bats were observed and no suitable western red bats roosting habitat is present at the site; however, suitable western red bat roosting habitat may be present in the Alamo Creek riparian woodland.

#### **5.2.1.7.7 State Special Animals**

Two State Special Animals, monarch butterfly and hoary bat, have potential to occur in the CPVVS site. The monarch butterfly may fly through the CPVVS site but does not have potential roosting habitat in the project region. Potential roosting habitat for hoary bat is present in the Alamo Creek riparian woodland, and the CPVVS site provides suitable foraging habitat for this species. These species are considered sensitive but do not have regulatory protection.

#### 5.2.1.7.8 Species of Recreational and Commercial Value

The only recreational land use within the CPVVS 1-mile survey area is the Cypress Lakes Golf Club on Meridian Road approximately 0.6 mile south of the proposed 230-kV electrical transmission line. The facility is a public golf course affiliated with Travis Air Force Base. Several special-status game bird species have potential to occur at the golf course including Canada goose, wood duck, and mallard. These species and ring-necked pheasant, a game bird without special-status, have also been observed at the CPVVS site. No recreational activities that are supported by wildlife species, such as hunting, fishing or bird watching, are known to occur in the CPVVS 1-mile survey area.

The natural gas pipeline will temporarily impact approximately 6.2 acres of cattle grazing pastures and row crops, currently planted in sunflower. Cattle will be excluded from the pipeline trenching area.

### 5.2.2 Environmental Analysis

Potential direct and indirect impacts to biological resources were evaluated to determine the permanent and temporary effects of construction and operation of the proposed CPVVS project. Results from the reconnaissance survey, habitat evaluations, and aerial imagery interpretation conclude the presence of significant biological resources in the CPVVS project area. There are no property or project features that would support special-status plants; however, the site currently provides suitable habitat for 143 sensitive and special-status wildlife species. Potential minor and less-than-significant impacts are limited to temporary noise disturbance during construction and possible avian collisions with the cooling towers.

This section identifies biological resources that may be affected either directly or indirectly by the project. Direct and indirect impacts may furthermore be either permanent or temporary in nature. These impact categories are defined below and are applied as part of the environmental analysis.

- **Direct:** The California Environmental Quality Act (CEQA) defines direct impacts as those impacts that result from the project and occur at the same time and place. Any alteration, disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Examples include loss of habitat resulting from clearing vegetation, encroaching into wetlands, diverting natural surface water flows, and the loss of individual species. The permanent and temporary impacts discussed below are examples of direct impacts associated with the CPVVS project.
- **Indirect:** CEQA defines indirect impacts as those caused by the project but that occur later in time or farther removed in distance, though still reasonably foreseeable and related to the project. As a result of project-related activities, biological resources may also be affected in a manner that is not direct. Examples include elevated noise and dust levels, increased human activity, decreased water quality, and the introduction of invasive plants and wildlife.
- **Permanent:** All impacts that result in the irreversible removal of biological resources are considered permanent. Examples include constructing a building or permanent road on an area containing biological resources. The CPVVS facility, electrical substation and footings for the 230 kV electrical transmission line represent permanent impacts associated with the CPVVS project.

- **Temporary:** Any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples include increased vehicle movement and noise from construction activities and habitat loss during underground pipeline trenching activities (assuming site restoration). The temporary construction laydown area, area of vegetation clearance around the electrical transmission towers, natural gas pipeline, and noise from construction activities represent temporary impacts associated with the CPVVS project.

Potential direct and indirect impacts to biological resources were evaluated to determine the permanent and temporary effects of project construction, operation, maintenance, and decommissioning of the project and supporting facilities.

### 5.2.2.1 Significance Criteria

The project would result in a significant impact on the environment if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as endangered, threatened, candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFG or USFWS
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFG or USFWS
- Have a substantial adverse effect on federal or state protected waters of the U.S. (including wetlands) as defined by Sections 404 and 401 of the Clean Water Act or the Porter-Cologne Act, either through direct removal, filling, hydrological alteration, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory native wildlife corridors, or impede the use of wildlife nursery sites
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan
- Threaten to eliminate a plant or animal community

CEQA Section 15380 provides that a plant or animal species may be treated as “rare or endangered” even if not on one of the official lists if, for example, it is likely to become endangered in the foreseeable future.

### 5.2.2.2 Potential Impacts of Construction

Construction of the CPVVS project is expected to begin in the second quarter of 2011, beginning with site preparation, and will conclude in the second quarter of 2013, for a total duration of 24 months. Initial site clearing of the 24-acre construction laydown and 24-acre CPVVS facility areas would take place during the first week of construction. Inclusive of

these sites and the area used for the 6-acre substation and the 0.95-mile-long, 230-kV transmission line, approximately 31 acres will be permanently disturbed during project construction. Approximately 31.21 acres associated with the temporary construction laydown area and installation of the 1.03-mile long natural gas pipeline will be temporarily disturbed.

TABLE 5.2-3  
Summary of CPVVS Permanent and Temporary Disturbance Areas (in acres)

Project Feature	Habitat Type	Permanent	Temporary	Total
CPVVS site	Inactive agriculture	24	0	24
Construction laydown area	Inactive agriculture	-	24	24
Gas pipeline	Active agriculture	-	6.2	6.2
Substation	Active agriculture	6	0	6
230-kV electrical transmission line	Active and inactive agriculture	0.003	0.01	0.013
Potable water supply pipeline*	Inactive agriculture	-	-*	-
<b>Total</b>		<b>31.003</b>	<b>31.21</b>	<b>62.213</b>

\* Occurs within the temporary construction laydown area.

### *CPVVS Facility*

Activities related to the construction of the CPVVS facility will require site preparation, including vegetation clearance and grading.

Habitat in the CPVVS facility is currently disked agriculture, and has been determined to provide suitable nesting and/or foraging habitat for sensitive and special-status bird and bat species listed in Table 5.2-2. Construction of the CPVVS facility will, therefore, result in permanent loss of 24 acres of habitat that could be used by special-status species including Swainson's hawk, northern harrier, white-tailed kite, loggerhead shrike, and others listed in Table 5.2-2. If vegetation clearance were to occur during the nesting season between February 1 and September 30, it would have the potential to significantly impact nesting birds, including northern harrier and killdeer that most likely nest on site.

These impacts would be significant without the implementation of protection and/or mitigation measures discussed in Section 5.2.4. Site preparation and construction activities would not occur until a biologist conducts pre-construction and clearance surveys for plant and wildlife species.

With the implementation of mitigation measures detailed in Section 5.2.4, any potentially significant impacts to biological resources resulting from construction of the CPVVS facility will be reduced to less-than-significant levels.

### *Construction Laydown Area*

Construction of the CPVVS facility will require a temporary construction laydown area immediately adjacent to the site for equipment staging, material storage, worker parking, and temporary administrative buildings.

Habitat in the construction laydown area is currently disked agriculture, and has been determined to provide suitable nesting and/or foraging habitat for special-status species listed in Table 5.2-2. Site preparation of the construction laydown area, including site grading, therefore, will result in temporary impacts to an additional 24 acres of suitable habitat for special-status species including Swainson's hawk, northern harrier, white-tailed kite, loggerhead shrike, and others listed in Table 5.2-2. If vegetation clearance were to occur between February 1 and September 30, it would have the potential to significantly impact nesting birds, including northern harrier and killdeer that most likely nest on site.

Use of the construction laydown area that produces noise in excess of 60 dBA may also result in temporary noise impacts to potentially occurring sensitive wildlife species including Swainson's hawk, northern harrier, white-tailed kite and western red bat. If vegetation clearance were to occur between February 1 and September 30, it would have the potential to impact nesting birds. These impacts could be potentially significant if the mitigation measures discussed in Section 5.2.4 are not implemented. Site preparation and construction activities would be preceded by a biologist conducting pre-construction and clearance surveys for plant and wildlife species.

To avoid permanent impacts to 24 acres of special-status wildlife species habitat, the temporary construction laydown area will be recontoured and restored following project construction to provide suitable nesting and foraging habitat for special-status bird and bat species.

With the implementation of mitigation measures detailed in Section 5.2.4, any potentially significant impacts to biological resources resulting from creation of the construction laydown area will be reduced to less-than-significant levels.

### ***Electric Substation***

Activities related to the construction of the 6-acre substation will require site preparation, including vegetation clearance and grading. The substation will be located in an area of active agriculture, currently grain hay, which has been determined to provide suitable nesting and/or foraging habitat for sensitive and special-status bird and bat species listed in Table 5.2-2. Site preparation and construction of the substation will result in permanent impacts to 6 acres of habitat for special-status species including Swainson's hawk, white-tailed kite, loggerhead shrike, western red bat, and others listed in Table 5.2-2. If vegetation clearance were to occur between February 1 and September 30, it would have the potential to impact nesting birds.

These impacts could be potentially significant if the mitigation measures discussed in Section 5.2.4 are not implemented. These activities would be preceded by a biologist conducting pre-construction and clearance surveys for plant and wildlife species. With the implementation of mitigation measures detailed in Section 5.2.4, any potentially significant impacts to biological resources resulting from construction of the substation will be reduced to less-than-significant levels.

### ***230-kV Electrical Transmission Line***

Activities related to the construction of the 230-kV electrical transmission line will require site preparation, including vegetation clearance and grading at proposed tower footing locations.

The proposed 230-kV electrical transmission line will run 0.95 mile west from the CPVVS to the substation, and will be placed approximately 70 feet north of Fry Road in disked and active agricultural fields. Towers will be constructed at 800-foot intervals, totaling seven towers over the 0.95-mile route. Each tower will require boring to provide subsurface support for the transmission conductor support towers and installation of 16-square-foot concrete foundations at tower locations. Constructing the transmission line would also involve staging conductor pulling and tensioning equipment at each end of the line. The pull and tensioning trucks would be staged inside of areas already disturbed for the substation and CPVVS. Construction will require approximately 100 square feet of vegetation clearance in the areas where the towers will be located; therefore, each tower will have approximately 16 square feet of permanent impacts and 84 square feet of temporary impacts. The combined area of impact for the seven towers will total 0.003 acre of permanent impacts and 0.01 acre of temporary impacts.

The 230-kV transmission line is located in areas of disked and active agriculture, including alfalfa and grain hay, that have been determined to provide suitable nesting and/or foraging habitat for the special-status bird listed in Table 5.2-2. Site preparation and construction of the 230-kV electrical transmission line, therefore, would result in 0.003 acres of permanent impacts and 0.01 acres of temporary impacts to sensitive and special-status species including Swainson's hawk, northern harrier, white-tailed kite, loggerhead shrike, and other species listed in Table 5.2-2.

To avoid permanent impacts to 0.01 acre of special-status species habitat, the 230-kV transmission line temporary impact area will be recontoured and restored following project construction to provide suitable nesting and foraging habitat for sensitive and special-status species.

With the implementation of mitigation measures detailed in Section 5.2.4, any potentially significant impacts to biological resources resulting from construction of the 230-kV electrical transmission line will be reduced to less-than-significant levels.

### ***Natural Gas Pipeline***

The CPVVS facility will require construction of an offsite natural gas pipeline to supply to the project site. Beginning at the high-pressure natural gas transmission pipeline operated by Pacific Gas and Electric Company (PG&E) approximately 1.03 miles east of the CPVVS site, the proposed natural gas pipeline would be placed approximately 70 feet north of Fry Road and enter the CPVVS facility at its southeast corner. The pipe connecting the CPVVS site with the PG&E pipeline will be 10 inches in diameter. Construction primarily will be open trench with a construction disturbance corridor width of 70 feet or less.

Construction would require temporary impacts on the corridor (e.g., vegetation clearing, trench excavation, compaction, dust generation, and restoration). The primary method of construction of the gas pipeline will be excavation of an open trench approximately 36 inches wide and 4 to 10 feet deep, depending on site-specific soil type. With loose soil, a trench up to 8 feet wide at the top and 3 feet wide at the bottom may be required. The pipeline will be buried to provide a minimum cover of 36 inches. During construction, a right-of-way 70 feet wide along the 1.03 mile pipeline length may be disturbed, totaling 6.2 acres of temporary impacts. This temporary construction corridor will be used to store

the excavated soil, provide access for equipment and vehicles, and space for fitting the pipeline prior to installation and backfill via backhoe.

The natural gas pipeline is located in areas of active agriculture, including row crops and pasture, which have been determined to provide suitable nesting and/or foraging habitat for special-status species listed in Table 5.2-2. Site preparation and construction of the natural gas pipeline, therefore, would result in 6.2 acres of temporary impacts to nesting and/or foraging habitat for special-status species. The natural gas pipeline will cross 12 agricultural and roadside drainage ditches that may provide suitable aquatic and upland foraging habitat for giant garter snake.

These ditches have downstream connectivity to Alamo Creek, and erosion or sediment washed into surface waters would be potentially harmful to water quality downstream. As discussed further in Section 5.15, Water Resources, the Applicant will prepare an erosion and sediment control plan for operation that specifies best management practices (BMPs) to be implemented during all project activities to avoid sediment runoff and erosion that would cause water quality degradation. If sections of trench are to remain open overnight, temporary exclusionary fencing will be established for these areas. Sections of trench will have ends that are sloped at a 3:1 ratio to allow for the egress of any wildlife. It is likely that only enough trench for the day will be cut to place pipe, fit, and backfill. This trenching limit prevents sections of trench from remaining open overnight and possibly entrapping wildlife. All open ends of pipes will be covered to prevent entrapment of wildlife.

With the implementation of mitigation measures detailed in Section 5.2.4, any potentially significant impacts to biological resources resulting from construction of the natural gas pipeline will be reduced to less-than-significant levels.

#### *Water Supply Pipeline*

All water needs for the project will be supplied by a 20-inch-diameter pipeline in the utility corridor connecting the CPVVS with the EWTP (Figure 2.1-1). Parallel pipelines, spaced a minimum of 10 feet apart, will be installed for potable water and sanitary sewer pipelines. With regard to the pipeline for the water supply, the primary method of construction includes excavation of an open trench approximately 36 inches wide and 5 to 10 feet deep, depending on site-specific soil type. With loose soil, a trench up to 8 feet wide at the top and 3 feet wide at the bottom may be required. The pipeline will be buried to provide a minimum cover of 36 inches. During construction, a 70-foot wide right-of-way may be disturbed. This temporary construction corridor will be used to store the excavated soil, provide access for equipment and vehicles, and space for fitting the pipeline prior to installation and backfill via backhoe.

Because the utility corridor is located within the 24-acre construction laydown area, temporary impacts associated with pipeline construction would not be separate from impacts associated with the construction laydown area. With the implementation of mitigation measures detailed in Section 5.2.4, any potentially significant impacts to biological resources resulting from construction of the water supply pipeline will be reduced to less-than-significant levels.

#### 5.2.2.2.2 Construction Impacts to Special-status Plant Species

There are no sensitive or special-status plants located at the CPVVS site or along the linear appurtenances; therefore, the project is not expected to result in significant impacts to sensitive or special-status plant species.

#### 5.2.2.2.3 Construction Impacts to Special-status Wildlife Species

Temporary and permanent impacts to special-status wildlife could occur from vegetation removal or crushing (resulting in a loss of nesting and foraging habitat), trenching, entombment of animals in dens or burrows, collisions with vehicles, disturbance from noise, and further fragmentation of habitat. These impacts have the potential to be significant.

No significant, unmitigated impacts to special-status wildlife are expected to result from the construction and operation of the CPVVS subsequent to the implementation of the following measures: awareness training; pre-construction and clearance surveys; avoidance, mitigation, and compensation measures proposed by the Applicant, suggested by the natural resource agencies, and summarized in the California Energy Commission (CEC) Biological Resources Mitigation Implementation Monitoring Plan (BRMIMP), and other measures discussed in Section 5.2.4. Effects on species from construction and operation of CPVVS are discussed in the following sections.

##### *Foraging Habitat for Swainson's Hawk, Raptors, and Bats*

The CPVVS site provides potential suitable foraging habitat for sensitive and special-status species. Foraging birds are protected under various federal and state codes, including the MBTA and CDFG codes 3503, 3503.5, and 3513. Swainson's hawk is a California threatened species with nine CNDDDB records within the 1-mile survey area (Figure 5.2-3) and that has been observed foraging within the CPVVS site. Swainson's hawks are presumed to nest in trees along Alamo Creek. Golden eagles are afforded additional protection under the BGEPA and CDFG code 3511. Northern harrier, short-eared owl, western burrowing owl, loggerhead shrike, and western red bat are state species of special concern, and white-tailed kite is a state fully protected species. Any potential impact to foraging habitat for these species resulting from the proposed project must be mitigated to reduce those impacts to less-than-significant levels.

The project will result in the permanent loss of 31.003 acres and an additional temporary disturbance to 31.21 acres of foraging habitat for Swainson's hawk, other foraging birds and foraging bats. Potential impacts from construction activities on Swainson's hawk and other foraging birds and bats could primarily occur from site clearance and grading. Additional construction-related impacts may occur due to noise and collisions with vehicles and equipment. Impacts of the aforementioned actions and the potential for loss of special-status species would be significant in the absence of mitigation. Mitigation measures established in the Draft Solano MHCP are expected to reduce potentially significant impacts to the State threatened Swainson's hawk and other foraging birds and bats. In addition, with the implementation of mitigation measures detailed in Section 5.2.4, any potentially significant impacts to Swainson's hawk, other foraging birds and foraging bats will be reduced to less-than-significant levels.

##### *Nesting Birds and Roosting Bats*

The CPVVS site provides suitable nesting habitat for several bird species including northern harrier and killdeer. Nearly all birds with potential to occur in the CPVVS 1-mile survey

area are protected under the MBTA and CDFG codes. Additionally, species designated as a California species of special concern, including northern harrier, mountain plover, and western red bat are protected under Title 14, California Code of Regulations (CCR) Sections 670.2 and 670.5. Swainson's hawk is a California threatened species with reported nests within the 1-mile survey area. Impacts to western burrowing owl nesting habitat could occur if western burrowing owls move into the CPVVS site during the nesting season (February 1 through September 30), prior to the start of construction, or during construction. Any potential impact to nesting or roosting habitat for these species resulting from the proposed project must be mitigated to reduce those impacts to less-than-significant levels.

The project will result in the permanent and temporary loss of nesting habitat for some migratory and resident birds. Potential impacts from construction activities on nesting birds could primarily occur from site clearance and grading. These impacts would be significant in the absence of mitigation. Initial clearance and grading of the construction laydown and CPVVS facility will be conducted prior to the February 1 start of the nesting season, and will be preceded by surveys to locate potential active nests. Every attempt will be made to remove nesting substrate (tall grasses and shrubs) from the site before the nesting season begins. If construction begins during the nesting season, surveys by a qualified biologist will be required to locate, protect, and monitor active nests until nestlings fledge. Mitigation measures designed to minimize potential impacts to less-than-significant levels are detailed in Section 5.2.4.

Temporary impacts to nesting birds and roosting bats in areas where construction noise exceeds 60 dBA may also occur. Noise and activity associated with project construction could disturb nesting birds and roosting bats, causing them to avoid the construction area. Foliage within the nearby Alamo Creek riparian woodland may provide suitable roosting habitat for western red and hoary bats. Western red bat is a California species of special concern, and, therefore, is afforded protection under 14 CCR670.2 and 670.5. Sensitive bird species could abandon nesting attempts if disturbed during the breeding season during construction. This could be a significant impact, without mitigation. Monitoring of nesting and roosting activities during construction activity may be necessary to determine if nests and roosts could be significantly disturbed. With the implementation of mitigation measures detailed in Section 5.2.4, any potentially significant impacts to Swainson's hawk, other foraging birds and foraging bats will be reduced to less-than-significant levels.

#### 5.2.2.2.4 Impacts to Trees

No trees exist within the project's construction footprint. A horticultural cherry plum (*Prunus cerasifera*) is east of the proposed electrical substation location between the proposed 230-kV electrical transmission line and the shoulder of Fry Road. Because it is currently outside of the project footprint, this tree will not be removed. Therefore, no significant impacts to trees are expected to occur.

#### 5.2.2.2.5 Impacts to Wildlife Corridors

The project is within the Pacific Flyway, a common route of bird migration that extends along the west coast of North America from Alaska to Patagonia, and from pelagic areas of the Eastern Pacific to the Great Basin. While individual migrating birds may be adversely impacted by the CPVVS, the CPVVS will not significantly impede migration along the flyway.

The nearest terrestrial wildlife corridor is a narrow band of riparian woodland bordering Alamo Creek approximately 0.18 mile north of the construction laydown area. The project is outside of the Alamo Creek riparian wildlife corridor, and the corridor will not be impacted by the project. Significant impacts to wildlife corridors are not expected to occur.

#### 5.2.2.2.6 Wetlands and Waters of the U.S

No jurisdictional wetlands or waters of the U.S. are present within 250 feet of the CPVVS site. Project construction would not cause loss or fill of any wetlands. The construction laydown area is approximately 30 feet from a constructed basin that exhibits signs of seasonal ponding; however, this basin does not possess hydric soils (See Routine Wetland Delineation Data Sheet, Appendix 5.2E) and will not be affected by the project. Therefore, the project is expected to have no significant effects to wetlands.

The CPVVS site is topographically upgradient of Alamo Creek; however, Alamo Creek is bounded along its southern bank by a levee that hydrologically isolates the creek from the site. Drainage in the area of the CPVVS site is to the south, where approximately 12 tertiary agricultural drainage ditches, including several that cross the proposed natural gas pipeline, pass beneath Fry Road to a secondary ditch paralleling the Dally-5 Irrigation Canal. This ditch then flows to the east, confluencing with Alamo Creek at Dally Road approximately 0.5 mile east of the natural gas pipeline. Therefore, the site has tertiary hydrologic connectivity to Waters of the U.S.

Water will be applied to the site and laydown area for dust control during construction, and erosion and sediment washed into surface waters could potentially impact downgradient Waters of the U.S. in the absence of mitigation measures.

As discussed further in Section 5.15, Water Resources, the Applicant will prepare an erosion and sediment control plan that specifies BMPs to be implemented during all project activities to avoid sediment runoff and erosion that would cause degradation to Waters of the U.S. With the implementation of these mitigation measures and BMPs, impacts will be less than significant.

#### 5.2.2.3 Potential Impacts of Operation

The CPVVS is designed as baseload electrical generating facility. Because the combined-cycle configuration will be more efficient than any of the aging gas-fired steam generation facilities in Northern California, the CPVVS will be frequently dispatched. The actual capacity factor in any month or year will depend on weather-related customer demand, load growth, hydroelectric supplies, generating unit retirements and replacements, the level of generating unit and transmission outages, and other factors. The exact operational profile of the plant will be dependent on weather conditions and the power purchaser's economic dispatch decisions.

During operation, the CPVVS will produce cooling tower drift, combustion turbine emissions, water discharge, noise, and light. In addition, the cooling towers and 230-kV transmission line could pose a collision and electrical hazard to birds. The potential for each of these products of CPVVS operation to adversely impact sensitive biological resources at the CPVVS site is discussed in the following sections.

#### 5.2.2.3.1 Cooling Tower Drift

The CPVVS project will use high efficiency drift eliminators that will reduce drift (the fine mist of water droplets entrained in the warm air leaving the cooling tower) to 0.0005 percent of the circulating water flow. At this level, cooling tower drift will have no significant adverse effect on the agricultural fields adjacent to the site.

Contaminants within the CPVVS cooling tower drift are expected to consist almost entirely of the minerals that are not removed by the tertiary treatment process. Metals and other chemicals of concern will be neutralized and removed from the cooling tower makeup water before it is introduced into the plant cooling water system.

Various salts from cooling water and the pH neutralizing process are expected to be in the cooling tower water. These low levels of salts are not expected to result in injury to the surrounding environment. Pahwa and Shipley (1979) exposed vegetation (corn, tobacco, and soybeans) to varying salt deposition rates to simulate drift from cooling towers that use saltwater (20-25 parts per thousand) circulation. Salt stress symptoms on the most sensitive crop plants (soybeans) were barely perceptible at a deposition rate of 2.98 g/m<sup>2</sup>/year (Pawha and Shipley, 1979). Using the conservative assumption that 100 percent of the airborne particulates from the CPVVS emissions would produce salts in the cooling tower drift, the calculated deposition rate of 5.2 g/m<sup>2</sup>/year, which is about twice the deposition rate that was shown to cause barely perceptible vegetation stress from salt mist to the most sensitive plants. For this reason, it is unlikely that there would be significant adverse impacts to vegetation from salt deposition.

#### 5.2.2.3.2 Combustion Turbine Emissions

Air emissions from the two combustion turbine exhaust stacks include nitrogen oxides (NO<sub>x</sub>), sulfur oxides (SO<sub>x</sub>), and particulates (PM<sub>10</sub>). Nitrogen oxide gases (NO, NO<sub>2</sub>) convert to nitrate particulates in a form that is suitable for uptake by most plants.

Particulate emissions will be controlled by inlet air filtration and use of natural gas. The deposition of airborne particulates (PM<sub>10</sub>) can affect vegetation through either physical or chemical mechanisms. Physical mechanisms include the blocking of stomata so that normal gas exchange is impaired, as well as potential effects on leaf adsorption and reflectance of solar radiation. Information on physical effects is scarce, presumably in part because such effects are slight or not obvious except under extreme situations (Lodge et al., 1981). Studies performed by Lerman and Darley (1975) found that particulate deposition rates of 365 g/m<sup>2</sup>/year caused damage to fir trees, but rates of 274 g/m<sup>2</sup>/year and 400 to 600 g/m<sup>2</sup>/year did not damage vegetation at other sites.

The maximum annual PM<sub>10</sub> deposition rate for the CPVVS of 2.3 g/m<sup>2</sup>/year is significantly below levels which would be expected to result in mechanical injury to vegetation (i.e., 365 g/m<sup>2</sup>/year; Lerman and Darley, 1975).

The maximum annual predicted concentration for PM<sub>10</sub> from the CPVVS is 8.2 µg/m<sup>3</sup>. Assuming a deposition velocity of 2 cm/sec (worst-case deposition velocity, as recommended by the California Air Resources Board [CARB]), this concentration converts to an annual deposition rate of 5.2 g/m<sup>2</sup>/year, which is several orders of magnitude below that which is expected to result in injury to vegetation (i.e., 365 g/m<sup>2</sup>/year). The addition of the maximum predicted annual particulate deposition rate for the CPVVS to the maximum

background concentration of 18.2  $\mu\text{g}/\text{m}^3$ , measured at the nearest monitoring station yields a total estimated particulate deposition rate of 16.7  $\text{g}/\text{m}^2/\text{year}$ , utilizing the 2 cm/sec factor. This total is still approximately one order of magnitude less than levels expected to result in plant injury.

The primary chemical mechanism for airborne particulates to cause injury to vegetation is by trace element toxicity. Many factors may influence the effects of trace elements on vegetation, including temperature, precipitation, soil type, and plant species (USFWS, 1978). Trace elements adsorbed to particulates emitted from power plant emissions reach the soil through direct deposition, the washing of plant surfaces by rainfall, and the decomposition of leaf litter. Ultimately, the potential toxicity of trace elements that reach the root zone through leaching will be dependent on whether the element is in a form readily available to plants. This availability is controlled in part by the soil cation exchange capacity, which is determined by soil texture, organic matter content, and the kind of clay present. Soil pH is also an important influence on cation exchange capacity; in acidic soils, the more mobile, lower valence forms of trace metals usually predominate over less mobile, higher valence forms. The silty clay and clay soils in the CPVVS project area will have a lower potential for trace element toxicity from the comparatively high soil pH commonly found in bay soils.

Perhaps the most important consideration in determining toxicity of trace elements to plants relates to existing concentrations in the soil. Several studies have been conducted relating endogenous trace element concentrations to the effects on biota of emissions from model power plants (Dvorak et al., 1977; Dvorak and Pentecost et al., 1977; Vaughan et al., 1975). These studies revealed that the predicted levels of particulate deposition for the area surrounding the model plant resulted in additions of trace elements to the soil over the operating life of the plant that were, in most cases, less than 10 percent of the total existing levels. Therefore, uptake by vegetation could not increase dramatically unless the forms of deposited trace elements were considerably more available than normal elements present in the soil.

#### 5.2.2.3.3 Stormwater and Process Water Discharge

Stormwater will be routed to an onsite retention pond where it will be percolated or evaporated. The retention pond may be an attractant to resident and migratory waterfowl. As discussed further in Section 5.15, Water Resources, the Applicant will prepare a stormwater pollution prevention plan for operation that specifies BMPs to be implemented during all project activities to avoid stormwater discharges that would cause water quality degradation. Any stormwater that is discharged into surface waters would be potentially harmful to water quality downstream.

The primary wastewater collection system will collect process wastewater from all of the plant equipment and route it to the oil/water separator and wastewater lift station for testing before discharge to the sanitary wastewater system. The secondary wastewater collection system will collect sanitary wastewater from sinks, toilets, showers, and other sanitary facilities, and discharge it via the facility's sanitary sewer collector system for return to the EWTP.

The CPVVS will use reclaimed water for power plant cooling and will use a zero-liquid discharge (ZLD) system for wastewater treatment. In this system, the impurities in the cooling water are removed and concentrated into a solid saltcake that is trucked off site for

disposal, while the water is continually recycled through the system until it is evaporated, except for a small stream of tertiary-treated wastewater that will be returned to the EWTP. Therefore, there will be no process water discharged from the CPVVS to outside surface or ground waters.

Because the CPVVS will draw process water from an existing water supply system and then discharge a small amount of wastewater into the sanitary sewer system, there will be no mechanism for entrapment of aquatic species or discharging water to affect aquatic resources during operations. No water (construction or process water) will be taken from or flow to Alamo Creek.

On an annual average basis, assuming full-time operation at 8,760 hours per year, recycled water use would be about 2,254 gallons per minute (gpm) or about 3.25 million gallons per day (mgd), approximately 50 percent of the current EWTP average dry weather flow of 6.5 mgd.

#### 5.2.2.3.4 Noise and Light from Plant Operations

The CPVVS site is zoned CF-Community Facilities and is adjacent to the EWTP. EWTP facilities have standard industrial lighting and noise emissions. Operation of the plant will produce some noise, as described in Section 5.7, Noise.

Noise from site preparation, construction, operations, and maintenance activities could temporarily discourage wildlife from foraging and nesting immediately adjacent to the project area. Many bird species rely on vocalization during the breeding season to attract a mate within their territory, and noise levels from certain construction, operations, and demolition activities could reduce the reproductive success of nesting birds. Construction and operation activity noise levels are provided in Section 5.7.

Noise impacts to wildlife are difficult to measure; however, results of several studies summarized by Golden, et al. (1980; *Environmental Impact Data Book*, Table 8-9, page 517) indicate no impacts from aircraft noise at 75 dBA for several wildlife species (caribou, waterfowl, moose, bison). Western burrowing owls, for example, have been noted to reside within 100 to 200 feet of an active railway with measured noise levels of approximately 90 dBA at a distance of 50 feet from the railway (Golden, 1980). Dooling and Popper (2007) suggest that traffic noise levels above 60 dBA could interfere with avian acoustic communication.

The expected loudest composite noise levels are approximately 89 dBA at 50 feet from the activity, which results in noise levels of approximately 77 and 61 dBA at distances of 200 and 400 feet from the activity, respectively. The Vacaville City Code requires the project to achieve 45 dBA at the closest residence, which currently is approximately 800 feet from the CPVVS facility. Bird nesting and bat roosting habitat in the Alamo Creek riparian corridor is approximately 950 feet (0.18 mile) from the CPVVS. Noise attributable to the CPVVS in the vicinity of the creek is expected to be less than 45 dBA. Potential significant impacts to wildlife due to noise will not occur where noise levels do not exceed 60 dBA.

Bright night lighting could disturb wildlife that occurs adjacent to the project site (e.g., nesting birds, foraging mammals, and flying insects). Night lighting is also suspected to attract migratory birds to areas and, if the lights are on tall towers or structures, collisions could occur. Additionally, certain lighting may attract insects which in turn may attract

birds such as nighthawks and bats to forage. The CPVVS lighting will meet the requirements for security, operations and maintenance, and safety, and will be shielded and pointed downward and away from the habitat outside of the project area to minimize impacts to nesting birds and other nearby wildlife, and to reduce the potential for avian and bat attraction and collision. Also, night lighting will have switches to allow them to be turned off when not in use.

#### 5.2.2.3.5 Potential for Collision and Electrocutation Hazard to Wildlife

The CPVVS site provides suitable habitat for sensitive and special-status insect, bird, and bat species with potential for significant impacts from collision and electrocution hazards to Swainson's hawk, golden eagle, American white pelican, western red bat, and other species. The CPVVS project would include two 150-foot-high stacks at the CPVVS facility and a 230-kV electrical transmission line to the substation with conductor support towers 100 feet high. These structures could potentially result in bird and/or bat collisions. The stormwater detention basin, near existing electrical transmission lines, may be an attractant to resident and migratory waterfowl.

Most bird collisions involve nocturnal migrants flying in inclement weather and low-visibility conditions, colliding with tall, guyed television or radio transmission towers (CEC, 1995; Kerlinger, 2000). Many birds generally migrate at night and at an altitude that would avoid ground structures, except when crossing over topographic features (e.g., ridge tops) or when inclement weather forces them down closer to the ground. Low-flying individual passerines collide with the wires during daylight operation. Raptor species expected to occur in the general area, such as the Swainson's hawk, could potentially collide with the stacks and transmission lines during inclement weather, and there is potential for additional special-status species to collide with elevated structures associated with the project.

Large raptors can be electrocuted by transmission lines when a bird's wings simultaneously contact two conductors of different phases, or a conductor and a ground. This happens most frequently when a bird attempts to perch on a structure with insufficient clearance between these elements. The presence of distribution lines represents more of a danger to raptors than transmission lines, because the spacing between elements in distribution lines is much less than that of transmission lines. This increases the chance of phase-to-phase or phase-to-ground contact because the conductors are closer together than the wingspan of many raptor species, thus allowing the bird species to contact both elements at once causing electrocution (APLIC, 1996). The proposed transmission lines would be 230-kV with conductor spans greater than 15 feet, and would, therefore, have a reduced chance of phase-to-phase or phase-to-ground contact.

While increasing the potential for electrocution associated with the installation of transmission lines in the project area is a potential significant direct impact to raptors, the line will incorporate design measures, such as the installation of USFWS-approved bird flight diverters to greatly reduce the chance of electrocution. The installation of transmission lines and poles will be constructed according to the most recent "raptor-friendly" guidelines (APLIC, 2005), ensuring that conductor wires are appropriately spaced to minimize the potential of raptor electrocution.

Therefore, the construction of the 230-kV electrical transmission line would not significantly increase avian electrocutions, and the “raptor-friendly” design would reduce potential impacts to less-than-significant. These mitigation measures are outlined in Section 5.2.4.

#### 5.2.2.3.6 Effects of Operation on Special-status Species

##### *Impacts to Special-status Plants*

There are no sensitive or special-status plants located at the CPVVS site or along the linear appurtenances; therefore, the project is not expected to result in significant impacts to sensitive or special-status plant species.

##### *Impacts to Sensitive and Special-status Wildlife Species*

Potential impacts to sensitive and special-status wildlife such as Swainson’s hawk, northern harrier, and killdeer could occur from collisions with vehicles, collision with power line conductors or towers, and disturbance from noise. These impacts have the potential to be significant.

However, with the implementation of mitigation measures proposed in Section 5.2.4, required by natural resource agencies and summarized in the CEC BRMIMP, the project is not expected to result in significant impacts to sensitive and special-status wildlife species. Species-specific impacts are discussed in the following sections.

**Swainson’s hawk, Other Foraging Birds, and Foraging Bats.** Potential impacts from operation activities on Swainson’s hawk, other foraging birds and foraging bats could primarily occur from collision and electrocution hazards. The cooling towers and electrical transmission lines could result in collision and electrocution hazards to birds and bats. Additional operation related impacts may occur due to collisions with vehicles and equipment. Mitigation measures established in the Draft Solano MHCP will reduce potentially significant impacts to the state threatened Swainson’s hawk, other foraging birds and foraging bats to less than significant levels. These measures are discussed in Section 5.2.4.

**Nesting Birds and Roosting Bats.** The CPVVS site provides suitable nesting habitat for bird species including northern harrier and killdeer. Foliage within the nearby Alamo Creek riparian woodland may provide suitable roosting habitat for western red and hoary bats. Potential impacts from operation activities on nesting birds and roosting bats could primarily occur from operational noise. Noise and activity associated with CPVVS operation could disturb nesting birds and roosting bats, causing them to avoid the CPVVS facility during construction years. Sensitive bird species could abandon nesting attempts if disturbed during the breeding season during operation. Monitoring of nesting and roosting activities during construction activity may be necessary to ensure that nests and roosts are not significantly disturbed. Measures to minimize potential operation related impacts to nesting birds and roosting bats to less-than-significant levels are discussed in Section 5.2.4.

#### 5.2.2.3.7 Operation Phase Impacts to Wetlands and Waters of the U.S

No jurisdictional or non-jurisdictional wetlands or waters of the U.S. are present within 250 feet of the CPVVS site. The CPVVS facility will use secondary-treated recycled water provided by the City of Vacaville from the EWTP for power plant processes; therefore, no surface or groundwater would be used for the operation of the facility. The facility will produce no non-reclaimable process wastewater.

Stormwater will be routed to an onsite retention pond where it will be percolated or evaporated. As discussed further in Section 5.15, Water Resources, the Applicant will prepare a stormwater pollution prevention plan for operation that specifies BMPs to be implemented during all project activities to avoid stormwater discharges that would cause water quality degradation. Any stormwater that is discharged into surface waters would be potentially harmful to water quality downstream.

Because there are no wetlands onsite and there will be no process or stormwater discharge off site, there will be no significant operation phase impacts to wetlands or waters of the U.S.

### 5.2.3 Cumulative Effects

A cumulative impact refers to a proposed project's incremental effect together with other closely related past, present, and reasonably foreseeable future projects whose impacts may compound or increase the incremental effect of the proposed project (Public Resources Code Section 21083; 14 CCR 15064(h), 15065(c), 15130, and 15355).

Applications for several residential projects have been filed in the City of Vacaville and Solano County. As described above, the CPVVS is not expected to cause significant, unmitigated impacts to biological resources. The potential impact to nesting birds will be avoided or minimized by pre-construction surveys and construction monitoring. There would be no net loss of Swainson's hawk habitat from CPVVS as the City of Vacaville will provide offsite habitat compensation for the permanent loss of Swainson's hawk habitat on site, and the restoration of the temporary laydown area will offset the temporary CPVVS impacts through the preservation and restoration of foraging habitat. This habitat compensation would also provide forage and nesting habitat for other special-status wildlife.

As new projects are subjected to CEQA review, any potentially significant adverse impacts to biological resources are considered and mitigated, if necessary. The CPVVS is not expected to cause any adverse cumulative impacts to biological resources.

### 5.2.4 Mitigation Measures

The following section describes the proposed measures that are intended to avoid, minimize, and otherwise mitigate potential adverse effects of the project to biological resources. Protection and mitigation measures for Swainson's hawk and western burrowing owl are outlined in the Draft Solano MHCP, which includes timing restrictions, buffer areas, worker training, habitat restoration, and habitat compensation for unavoidable loss of habitat. A BRMIMP will be prepared prior to construction that outlines how the Applicant would implement the mitigation and protection measures developed specifically for the project through consultation and discussions with USFWS, CDFG, and Solano County and will monitor and document the effectiveness of the measures.

A site-specific Worker Environmental Awareness Program (WEAP) will be administered by the biologist as part of the mitigation plan, and it is intended to educate construction workers and operators on the sensitive resources in the area and the measures that will be undertaken to avoid or minimize impacts to these resources. The WEAP will include an oral, video/powerpoint, and/or written materials presentation that discusses the types of construction activities that may impact biological resources and the measures developed to

avoid such impacts. The WEAP will also include appropriate contact procedures and personnel information. The program will include information regarding encounters with wildlife and dealing with situations involving biological resources.

General construction measures to be implemented within the project area will be developed as part of the WEAP and will include the following:

1. Provide construction monitoring by a qualified biologist to ensure compliance with the protection measures.
2. Demarcate access routes and construction areas to minimize impacts to habitat and special-status species during construction and operations.
3. Conduct pre-construction and clearance surveys for special-status species within impact areas.
4. Prepare standardized construction monitoring and compliance reports that analyze the effectiveness of the measures.
5. Restoration of temporary disturbance areas to pre-construction conditions as determined appropriate during coordination with the CDFG for the Swainson's hawk and other raptors, including topography, hydrology, and vegetation, as determined appropriate, including the linear corridors (e.g., gas line), and laydown area following construction.

#### **5.2.4.1 Mitigation Measure 1 – Site Restoration Plan**

##### **5.2.4.1.1 Temporary Disturbance Areas**

With the exception of temporarily disturbed areas (i.e., the construction laydown area and natural gas pipeline), the expected CPVVS facility lifetime is 30 or more years. Construction will result in 31.21 acres of temporarily disturbed areas including the construction laydown area, natural gas pipeline, and vegetation clearance for the 230-kV electrical transmission line tower footings that will be restored and revegetated after construction as described in the site restoration plan to be included in the BRMIMP. Elements of the restoration plan are described below. The main goal for restoration is to provide forage habitat for Swainson's hawk and other raptors known to occur in the area.

The CPVVS Site Restoration Plan will include the following sections and details: (1) goals and objectives of the restoration; (2) a description of methods employed to achieve the restoration goals and objectives; (3) success criteria used to determine if the restoration is successful; (4) a monitoring and maintenance program, including details on remedial measures; (5) noxious weed control plan; (6) a description of annual reporting; and (7) a restoration implementation and monitoring timeline and schedule of planned activities. The scope of this plan will be proportionate to the magnitude of the expected impact. All practicable measures to avoid sensitive resources (e.g., mapped special-status plant species) will be taken during construction to reduce impacts to the maximum degree possible.

##### **5.2.4.1.2 Facility Closure Plan**

Over the long term, once the CPVVS facilities are no longer needed, the structures will be removed and the project area will be restored to approximate preconstruction conditions.

Because rehabilitation of the site is not to occur for more than 30 years a draft conceptual plan will be included as part of the BRMIMP. This draft plan can then be updated at a later date (but no later than 1 year prior to closure) that would reflect the current technology and regulatory requirements at the time of facility closure.

A formal rehabilitation plan for the CPVVS facility closure will be developed by project owner and submitted to the CDFG and the CEC Compliance Project Manager (CPM) at least one year prior to facility closure.

The CPVVS facility closure restoration plan will follow currently accepted site restoration practices in use by CDFG or other appropriate resource agencies, at the time of project closure, and it is expected to include the following sections and details: (1) goals and objectives of the restoration; (2) a description of methods employed to achieve the restoration goals and objectives; (3) success criteria used to determine if the restoration is successful; (4) a monitoring and maintenance program, including details on remedial measures; (5) a description of annual reporting; and (6) a restoration implementation and monitoring timeline and schedule of planned activities.

#### 5.2.4.2 Special-status Species

Emphasis for mitigation is placed on the most sensitive resource that may be impacted by the project; the California threatened Swainson's hawk. The following paragraphs describe mitigation and protection measures that will be implemented during preconstruction, construction, operation, and closure activities, and will be incorporated into the BRMIMP and WEAP. These measures are expected to compensate for other species not specifically protected under ESA or CESA.

##### 5.2.4.2.1 Mitigation Measure 2 – Swainson's Hawk

The following measures are proposed for Swainson's hawk, but will also provide protection/compensation for other foraging raptors and foraging bats. These measures comply with the Draft Solano MHCP Swainson's hawk conservation measures SH-1 through SH-8. The objective of the measures is to avoid, minimize, and compensate for impacts to Swainson's hawk, and to preserve habitat that will support viable populations. These measures will concurrently mitigate impacts to other foraging raptors and foraging bats at the project site. Note: measures proposed to mitigate for potential impacts to Swainson's hawk will also mitigate for other foraging special-status bird and bat species.

1. The oak riparian woodland associated with Alamo Creek 0.18 mile to the north of the CPVVS site is known to provide nesting and roosting habitat for Swainson's hawk and other birds, and Swainson's hawks are reported in the CNDDDB to occur within the CPVVS 1-mile survey area (Figure 5.2-3). Additionally, trees within the riparian area may provide suitable roosting habitat for bats. If construction activities take place between March 1 and November 1, these areas will be surveyed for Swainson's hawk nests prior to the start of construction. The Swainson's hawk surveys will occur within 0.5 mile of construction sites in areas providing suitable nesting habitat for Swainson's hawk, and will be conducted prior to each phase of construction that involves the use of heavy equipment. If an active Swainson's hawk nest is found, no construction activity will occur within 0.25 mile of these areas. Construction activities and timing may be modified to avoid impacts to these species.

2. Compensatory mitigation for permanent impacts to 31.003 acres of Swainson's hawk foraging habitat shall be provided, in accordance with CDFG policies and guidelines, through the preservation and management of foraging habitat at a 1:1 mitigation to impact ratio. Habitat preservation may be achieved through purchase of credits at an authorized mitigation bank such as the Jenny Farms Conservation Bank in Solano County, through fee title (with an applicable conservation easement dedicated to an approved organization), or through purchase of suitable conservation easements directly from landowners. Compensatory mitigation will include a per acre impact fee to cover the cost of planting and protecting one potential nest tree per acre of habitat lost.
3. During both the construction and operation phases, a speed limit of 15 miles per hour will be established and enforced on all onsite routes. The speed limit will reduce the potential for loss of bird species due to collisions with vehicles.
4. To further minimize potential impacts to Swainson's hawk, design features may include the following:
  - a. Overhead power lines appropriately spaced to minimize the potential of raptor electrocution using the latest APLIC (2005) recommended guidelines for line spacing.
  - b. USFWS-approved bird flight diverters installed on the new power lines. The diverters will be installed per manufacturer's specifications; replaced when damaged or deemed defective; and maintained for the full length of the transmission line for the life of the facility.
  - c. Shielded lighting consisting of sodium bulbs that are directed downward to reduce light pollution and potential for avian and bat attraction and collision.
5. A threshold of significance for raptor/migratory bird (species protected under the MBTA and the BGEPA) mortality will be established. Monthly post-mortality surveys for such species will be conducted by a qualified biologist during the first three years of project operation. If this threshold of significance is met or exceeded, adaptive management practices will be implemented to reduce such impact. Based on the results of these monthly post-mortality surveys, it will be determined if these surveys are to continue after the initial year.

#### 5.2.4.2.2 Mitigation Measure 3 – Nesting Birds and Roosting Bats

1. If construction is to occur during the nesting season between February 1 and September 30, all sites to be disturbed will be surveyed for ground-nesting birds prior to construction. A qualified biologist will perform a preconstruction survey for nesting birds in the project area, including areas within 0.5 mile of all project facilities, utility corridors, and access roads and other areas where project construction noise is projected to exceed 60 dBA. If an active nest of a species protected under the MBTA is found, construction activity will be limited within 250 feet of the nest, which will be monitored by a qualified biologist to avoid impacts to the nest. Nests may be relocated, or young birds rehabilitated and released under the guidance of CDFG, as necessary, to avoid project delays due to the presence of active bird nests; conversely, construction activities and timing may be modified to avoid impacts to nesting birds. Killdeer may nest in inactive laydown areas.

2. Frequent disturbance (every few days) may be initiated in project areas just prior to the nesting season to remove nesting substrate and discourage nesting in construction areas.

#### 5.2.4.2.3 Mitigation Measure 4 – Western Burrowing Owl

Although no western burrowing owls were observed during biological surveys, the following measures are proposed if they are found to have moved onto the site before construction begins. These measures are outlined in the CDFG Memorandum entitled *Staff Report on Burrowing Owl Mitigation* (CDFG, 1995), and comply with Solano HCP western burrowing owl conservation measures BO-1 through BO-10. The objective of the measures is to avoid and minimize impacts to western burrowing owls at the project site and preserve habitat that will support viable populations.

1. A preconstruction survey of suitable habitat at the project site and a 150-meter (approximately 500-foot) buffer (where possible and appropriate based on habitat) will be surveyed within 30 days prior to construction to ensure no new western burrowing owls have established territories. If ground-disturbing activities are delayed or suspended for more than 30 days after the preconstruction survey, the site will be resurveyed.
2. Ground-disturbing actions should be carried out from October 1 to January 31, which is prior to the nesting season. Since the timing of nesting activity may vary with latitude and climatic conditions, this timeframe should be adjusted accordingly.
3. Occupied burrows will not be disturbed during the nesting season (February 1 through August 31) unless a qualified biologist verifies through non-invasive methods that either: (1) the birds have not begun egg-laying and incubation; or (2) that juveniles from the occupied burrows are foraging independently and are capable of independent survival.
4. If owls must be moved away from the disturbance area, passive relocation techniques (as described below) will be used rather than trapping. Owls will be excluded from burrows in the immediate impact zone and within a 50-meter (approximately 160-foot) buffer zone by installing one-way doors in burrow entrances. One-way doors (e.g., modified dryer vents) will be left in place 48 hours to ensure owls have left the burrow before excavation. Whenever possible, burrows will be excavated using hand tools and refilled to prevent reoccupation. Sections of flexible plastic pipe will be inserted into the tunnels during excavation to maintain an escape route for any animals inside the burrow.
5. Mitigation for the permanent conversion (greater than one breeding season) of western burrowing owl habitat within vacant or fallow land shall be at a 1:1 ratio or in accordance with current CDFG policies and guidelines. Specified mitigation ratios identified under the conservation measures for Swainson's hawk may also be applied to western burrowing owl conservation.

#### 5.2.4.2.4 Mitigation Measure 4 – Giant Garter Snake

The following measures are proposed for giant garter snake. Because the CPVVS site is not within the area addressed by the Draft Solano MHCP conservation strategy, the following measures comply instead with *Standard Avoidance and Minimization Measures During Construction Activities in Giant Garter Snake (*Thamnophis gigas*) Habitat* (USFWS, 1997).

Impacts to giant garter snake habitat associated with the CPVVS natural gas pipeline are temporary in nature and are less than significant.

1. Construction activities within 200 feet from the banks of giant garter snake aquatic habitat will be avoided as much as possible. Movement of heavy equipment will be confined to existing roadways to minimize habitat disturbance.
2. Construction activity within habitat will be conducted between May 1 and October 1 as much as possible. This is the active period for giant garter snakes and direct mortality is lessened, because snakes are expected to actively move and avoid danger. If construction activity will occur between October 2 and April 30, USFWS will be contacted to determine if additional measures are necessary to minimize and avoid take.
3. Clearing will be confined to the minimal area necessary to facilitate construction activities. Giant garter snake habitat within or adjacent to the project area will be flagged and designated as Environmentally Sensitive Areas. These areas will be avoided by all construction personnel.
4. Construction personnel should receive USFWS-approved worker environmental awareness training. This training instructs workers to recognize giant garter snakes and their habitat(s).
5. 24-hours prior to construction activities, the project area will be surveyed for giant garter snakes. Survey of the project area will be repeated if a lapse in construction activity of two weeks or greater has occurred. If a snake is encountered during construction, activities shall cease until appropriate corrective measures have been completed or it has been determined that the snake will not be harmed. Any sightings and any incidental take will be immediately reported to the USFWS.
6. Any dewatered habitat will remain dry for at least 15 consecutive days after April 15 and prior to excavating or filling of the dewatered habitat.
7. After completion of construction activities, any temporary fill and construction debris will be removed and, wherever feasible, disturbed areas will be restored to pre-project conditions. Restoration work may include such activities as replanting species removed from banks or replanting emergent vegetation in the active channel. Temporary impacts to giant garter snake habitat will be mitigated through onsite restoration.

### 5.2.5 Laws, Ordinances, Regulations, and Standards

The following sections describe the LORS that apply to potential impacts on biological resources in the project area, and list the agencies responsible for enforcing the regulations. A summary of the LORS is provided in Table 5.2-4.

TABLE 5.2-4  
Laws, Ordinances, Regulations, and Standards for Biological Resources

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
<b>Federal</b>			
Federal Endangered Species Act (Federal ESA, 16 USC 1531 et seq.)	Designates and protects federally threatened and endangered plants and animals and their critical habitat. Applicants for projects that could result in adverse impacts on any federally listed species are required to consult with and mitigate potential impacts in consultation with USFWS.	USFWS	The CPVVS project is not likely to adversely affect federally listed vernal pool branchiopod species. A Request for Technical Assistance will be prepared for the USFWS that discusses measures the CPVVS project will undertake to avoid adverse effects to the basin. If the USFWS concurs that these measures are adequate, a Letter of Concurrence will be issued stating the USFWS determination that the project may affect, but is not likely to adversely effect, federally listed branchiopod species. (Section 5.2.1.6)
Migratory Bird Treaty Act (16 USC 703 to 711)	Protects all migratory birds, including nests and eggs.	USFWS	The CPVVS project will include mitigation measures to reduce impacts to resident and migratory birds to a less than significant level. (Section 5.2.2.2)
Bald and Golden Eagle Protection Act (16 USC 668)	Specifically protects bald and golden eagles from harm or trade in parts of these species.	USFWS	The CPVVS project will include mitigation measures to reduce impacts to eagles to a less than significant level. (Section 5.2.2.2)
<b>State</b>			
California Endangered Species Act (Fish and Game Code Section 2050 et seq.).	Species listed under this act cannot be "taken" or harmed, except under specific permit.	CEC	The CPVVS project will include mitigation measures to reduce impacts to State listed species to a less than significant level. (Section 5.2.2.2)
Fish and Game Code Section 3511	Describes bird species, primarily raptors, that are "fully protected." Fully protected birds may not be taken or possessed, except under specific permit requirements.	CDFG	The CPVVS project will include mitigation measures to reduce impacts to fully protected species to a less than significant level. (Section 5.2.2.2)
Fish and Game Code Section 3503	States that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto.	CDFG	The CPVVS project will include mitigation measures to reduce impacts to bird nests and eggs to a less than significant level. (Section 5.2.2.2)

TABLE 5.2-4  
Laws, Ordinances, Regulations, and Standards for Biological Resources

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
Fish and Game Code Section 3503.5	Protects all birds of prey and their eggs and nests.	CDFG	The CPVVS project will include mitigation measures to reduce impacts to bird nests and eggs to a less than significant level. (Section 5.2.2.2)
Fish and Game Code Section 3513	Makes it unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird.	CDFG	The CPVVS project will include mitigation measures to reduce impacts to birds of prey to a less than significant level. (Section) 5.2.2.2
Fish and Game Code Sections 4700, 5050, and 5515	Lists mammal, amphibian, and reptile species that are fully protected in California.	CDFG	No fully protected mammal, amphibian, or reptile species will be impacted by the CPVVS project. (Section 5.2.2.2)
Fish and Game Code Sections 1900 et seq.,	The Native Plant Protection Act lists threatened, endangered, and rare plants listed by the State.	CDFG	No State threatened, endangered or rare plants will be impacted by the CPVVS project. (Section 5.2.1.7)
Title 14, California Code of Regulations, Sections 670.2 and 670.5	Lists animals designated as threatened or endangered in California.	CDFG	The CPVVS project will include mitigation measures to reduce impacts to threatened and endangered animals to a less than significant level. (Section 5.2.2.2)
California Fish and Game Code (Sections 1601 through 1607)	Prohibits alteration of any stream, including intermittent and seasonal channels and many artificial channels, without a permit from CDFG.	CDFG	No streams, including intermittent and seasonal channels will be impacted by the CPVVS project. The project will impact several agricultural drainage ditches; however, these normally do not require a CDFG permit. (Section 5.2.2.2.5)
CEQA (Public Resources Code Section 15380)	CEQA requires that the effects of a project on environmental resources must be analyzed and assessed using criteria determined by the lead agency.	CEC	The AFC analysis and process is CEQA equivalent. All requirements under CEQA are met with the analysis in the CPVVS project AFC. (Section 5.2)
Warren Alquist Act (Public Resources Code Section 25000, et seq.)	Warren-Alquist Act is a CEQA-equivalent process implemented by the CEC.	CEC	The AFC analysis and process is CEQA equivalent. All requirements under the Warren-Alquist Act are met with the analysis in the CPVVS project AFC. (Section 5.2)

TABLE 5.2-4  
Laws, Ordinances, Regulations, and Standards for Biological Resources

LORS	Requirements/Applicability	Administering Agency	AFC Section Explaining Conformance
<b>Local</b>			
Solano County Multiple Species Habitat Conservation Plan (Solano HCP)	Long-term conservation goals that address existing biological resources, proposed urban growth, habitat losses, and direct, indirect, and cumulative impacts on sensitive species throughout Solano County.	Solano County	The CPVVS project is consistent with and will not affect the long-term conservation goals for the Solano HCP. (Section 5.2.2.2)

### 5.2.5.1 Federal LORS

#### 5.2.5.1.1 Federal Endangered Species Act (16 United States Code [USC] 153 et seq.)

Applicants for projects that could result in adverse impacts on any federally listed species are required to consult with and mitigate potential impacts in consultation with USFWS. Adverse impacts are defined as “take,” which is prohibited except through authorization of a Section 7 or Section 10 consultation and Incidental Take Authorization. “Take” under federal definition includes “such act as may include significant habitat modification or degradation” (50 Code of Federal Regulations [CFR] §17.3). Species that are not listed are not protected by federal ESA, even if they are candidates for listing; however, USFWS advises that a candidate species (as well as species of concern) could be elevated to listed status at any time, and therefore, applicants should regard these species with special consideration.

A former sludge drying basin, located near to but outside of the temporary construction laydown area, may provide suitable habitat for federally listed branchiopod species. The CPVVS project will avoid this basin and is not likely to adversely impact potential federally listed vernal pool branchiopod habitat. Several agricultural drainage ditches located across the proposed natural gas pipeline may provide suitable habitat for giant garter snake, a federally threatened species.

#### 5.2.5.1.2 Migratory Bird Treaty Act (16 USC 703 to 711)

This statute protects all migratory birds, including nests and eggs.

#### 5.2.5.1.3 Bald and Golden Eagle Protection Act (16 USC 668)

This law specifically protects bald and golden eagles from harm or trade in parts of these species.

### 5.2.5.2 State LORS

#### 5.2.5.2.1 California Endangered Species Act

The California Endangered Species Act of 1984 (CESA; Fish and Game Code Sections 2050-2116), created the categories of “threatened” and “endangered” species to align with Federal regulations. It converted all “rare” animals into the Act as threatened species, and requires mitigation for impacts to species and their habitat. CDFG requires a CESA Section 2081 (a) permit for take of candidate or listed threatened and endangered animals for scientific, educational, or management purposes, and a CESA Section 2081 (b) permit for incidental take of listed threatened and endangered animals from all activities. The CPVVS would affect foraging habitat for the Swainson’s hawk, a California threatened species.

#### 5.2.5.2.2 Fish and Game Code Section 3500, 3503.5 and 3800

All birds are provided protection under Sections 3500, 3503.5, and 3800 of the California Fish and Game Code. Section 3503.5 prohibits the take, possession, needless destruction of any bird of prey or nests or eggs of any species on the MBTA list except as otherwise provided in the codes and regulations. Disturbance of any active bird nest during the breeding season is prohibited. When nesting birds are present on a specific property, take must be avoided, and project proponents are required to reduce or eliminate disturbances within the active nesting territories or during the nesting season. The CPVVS would affect foraging habitat and/or nesting habitat for several bird species protected under the MBTA.

#### **5.2.5.2.3 Fish and Game Code Section 3511**

This code identifies bird species, primarily raptors that are “fully protected.” Fully protected birds, including the white-tailed kite, may not be taken or possessed, except under specific permit requirements. The CPVVS would affect foraging habitat and/or nesting habitat for the white-tailed kite.

#### **5.2.5.2.4 Fish and Game Code Section 3513**

This code makes it unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird.

#### **5.2.5.2.5 Title 14, California Code of Regulations, Sections 670.2 and 670.5**

This code lists animals designated as threatened or endangered in California. California species of special concern is a category conferred by CDFG on those species that are indicators of regional habitat changes or are considered potential future protected species. These species do not have any special legal status, but are intended by CDFG for use as a management tool to take these species into special consideration when decisions are made concerning the future of any land parcel.

#### **5.2.5.2.6 California Environmental Quality Act (Public Resources Code Section 15380)**

CEQA defines “rare” in a broader sense than the definitions of threatened, endangered, or species of special concern. Under this definition, CDFG can request additional consideration of species not otherwise protected. CEQA requires that the effects of a project on environmental resources must be analyzed and assessed using criteria determined by the lead agency.

#### **5.2.5.2.7 Warren Alquist Act (Public Resources Code Section 25000, et seq.)**

The Warren Alquist Act is a CEQA-certified and CEQA-equivalent process implemented by the California Energy Commission. Preparation of this application will result in an assessment prepared by the CEC staff to fulfill the requirements of CEQA.

### **5.2.5.3 Local LORS**

#### **5.2.5.3.1 Applicable Habitat Conservation Plans and Critical Habitat Designations**

The proposed CPVVS site is located within the Draft Solano MHCP service area. The Draft Solano HCP is intended to support the issuance of a Section 10(a)1(B) “incidental take permit” under the ESA for activities associated with future water use in the Solano HCP service area. The Solano HCP also intends to secure incidental take authorization from the CDFG for state-listed species (Fish and Game Code §2080.1) under the California Natural Community Conservation Planning Act of 1991. The Solano HCP intends in part to provide a long-term conservation program to reduce conflicts between listed species and land use activities, streamline regulatory processes, lessen or avoid cumulative impacts on covered species, and to promote conservation of covered species. The City of Vacaville is currently a participant in the Draft Solano MHCP. The Solano MHCP will be consulted for appropriate mitigation measures so that the CPVVS project will be in compliance with the plan should it be finalized prior to project construction. The City of Vacaville will be lead agency for consultation for areas under their jurisdiction.

#### **5.2.5.3.2 City of Vacaville General Plan**

The project facility site is located entirely within the City of Vacaville’s jurisdiction. The General Plan has three stated purposes; 1) To enable the City Council, Planning Commission

and Community Services Commission to establish long-range development policies; 2) To provide a basis for judging whether specific private development proposals and public projects are in harmony with the policies; and 3) To guide other public agencies and private developers in designing projects that are consistent with City policies. The Open Space element of the City's General Plan contains objectives that address the preservation of natural resources, which includes, but is not limited to, areas required for the preservation of plant and animal life or habitat, creekways, streams and watersheds. The Conservation Element addresses the conservation, development, and utilization of natural resources including water and its hydraulic force, forests, soils, rivers and other waters, harbors, fisheries, wildlife, minerals, and other natural resources (City of Vacaville, 2007).

## 5.2.6 Agencies and Agency Contacts

Involved agencies and agency contacts are listed in Table 5.2-5. CDFG has been contacted to coordinate the avoidance of impacts to Swainson's hawk, western burrowing owl, nesting migratory birds, and other species, and to determine appropriate mitigation measures in accordance with CDFG policies and guidelines. USFWS has been contacted to coordinate the avoidance of impacts to federally listed branchiopod species. USACE will be contacted if there is potential for impacts to Waters of the U.S. Appendix 5.2G provides records of conversation with these regulatory agencies.

TABLE 5.2-5  
Agency Contacts for Biological Resources

Issue	Agency	Contact
State listed species	California Department of Fish and Game	Anna Holmes Staff Biologist, Region 3 7329 Silverado Trail Napa, CA 94558 Staff Biologist, Region 3 (209) 948-7163
Federally listed branchiopod species	United States Fish and Wildlife Service	Michelle Tovar Wildlife Biologist 2800 Cottage Way Sacramento, CA 95825 (916) 414-6600
Federally listed giant garter snake		Jana Milliken Chief, Sacramento Valley Branch US Fish & Wildlife Service 2800 Cottage Way, Room W-2605 Sacramento, CA 95825-1846 (916) 414-6645

## 5.2.7 Permits and Permit Schedule

The CPVVS project will require consultation with the USFWS for project activities that may impact listed branchiopod species and the listed giant garter snake. The project will also require consultation with the CDFG under the California Endangered Species Act under Fish and Game Code Sections 2081 or 2080.1 to resolve potential impacts to state-listed

species. Informal consultation will begin with these agencies soon after AFC filing and will continue through the Discovery and Analysis phases of CEC Certification.

## 5.2.8 References

Avian Power Line Interaction Committee (APLIC) of the Edison Institute and United States Fish and Wildlife Service. 2005. Avian Protection Plan (APP) Guidelines.

Biogeographic Information and Observation System (BIOS). 2008. California Department of Fish and Game. Available online at: <http://bios.dfg.ca.gov/>.

BirdWeb 2008. Clark's Grebe (*Aechmophorus clarkii*). Seattle Audubon Society. Available online: [http://www.birdweb.org/birdweb/bird\\_details.aspx?id=11#description](http://www.birdweb.org/birdweb/bird_details.aspx?id=11#description)

California Burrowing Owl Consortium (CBOC). 1993. Burrowing owl survey protocol and mitigation guidelines. April 1993. 13 pp.

California Department of Fish and Game (CDFG). 2008. California Natural Diversity Data Base. Search of the Mt. Vaca, Fairfield North, Fairfield South, Allendale, Elmira, Denverton, Dixon, Dozier, Birds Landing, Saxon, Liberty Island, and Rio Vista 7.5-minute USGS quadrangles., 2007.

California Department of Fish and Game (CDFG). 2008. Fully Protected Animals. Non-game Wildlife Program. Available online:  
[http://www.dfg.ca.gov/wildlife/species/t\\_e\\_spp/fully\\_pro.html](http://www.dfg.ca.gov/wildlife/species/t_e_spp/fully_pro.html)

California Department of Fish and Game (CDFG). 2003. CNDDDB. Biogeographic Data Branch. The Vegetation Classification and Mapping Program. List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database. September 2003 Edition.

California Department of Fish and Game (CDFG). 1995. Fish Species of Special Concern in California, Sacramento Splittail. Available online: [http://www.dfg.ca.gov/habcon/cgi-bin/read\\_one.asp?specy=fish&idNum=64](http://www.dfg.ca.gov/habcon/cgi-bin/read_one.asp?specy=fish&idNum=64)

California Energy Commission (CEC). 1995. Avian Collision and Electrocution: An Annotated Bibliography. P. 114.

California Environmental Resources Evaluation System (CERES). Available online:  
<http://ceres.ca.gov/>

California Native Plant Society (CNPS). 2008. Inventory of Rare and Endangered Vascular Plants of California, 7th edition.

City of Vacaville. 2007. General Plan. December. Available online:  
[http://www.ci.vacaville.ca.us/departments/community\\_development/general\\_plan.php](http://www.ci.vacaville.ca.us/departments/community_development/general_plan.php)

Davis, W. E., Jr. 1993. Black-crowned Night-Heron (*Nycticorax nycticorax*). In The Birds of North America, No. 74 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.

- Dooling Robert J. and Arthur N. Popper. 2007. The Effects of Highway Noise on Birds. Environmental BioAcoustics LLC. Rockville, MD 20853 September 30. Prepared for: The California Department of Transportation Division of Environmental Analysis
- Dubowy, P. J. 1996. Northern Shoveler (*Anas clypeata*). In The Birds of North America, No. 217 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and the American Ornithologists' Union, Washington, D.C.
- Dvorak, A. J. and E. D. Pentecost, et al. 1977. Assessment of the health and environmental Effects of Power Generation in the Midwest. Vol. II, Ecological Effects. Prepared by Argonne National Laboratory, Argonne, Ill. (Draft report).
- Dvorak, A. J., et al. 1979. The Environmental Effects of Using Coal for Generating Electricity. NUREG-0252. Prepared by Argonne National Laboratory, Argonne, Ill., for the U.S. Nuclear Regulatory Commission. 221 pp.
- Golden, J., R.P. Onelle, S. Saari and P.N. Cheremisinoff. 1980. Environmental Impact Book, Ann Arbor Science Publishers, Ann Arbor, Michigan.
- Grinnell, J., and A.H. Miller. 1944. The distribution of the birds of California. Pacific Coast Avifauna 27. Cooper Ornithological Club, Berkeley, California.
- Holland, R.F. 1986. Preliminary descriptions of the terrestrial natural communities of California. State of California, The Resources Agency.
- Johnson, K. 1995. Green-winged Teal (*Anas crecca*). In The Birds of North America, No. 193 (A. Poole and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, and The American Ornithologists' Union, Washington, D.C.
- Kerlinger, Paul. 2000. *Avian Mortality at Communication Towers: A Review of the Recent Literature, Research; and Methodology*. Prepared for U.S. Fish and Wildlife Service, Office of Migratory Bird Management. 38 pp.
- Lerman S, L. and E.F.D Arley. 1975. Articulates, pp. 141-158. In: Response of plants to air pollution, edited by J.B. Mudd and T.T. Kozlowski. Academic Press. New York.
- Lodge, J.P. Jr., A.F. Waggoner, P, T.K. Lodt, and C.N.C. Rain. 1981. Non-health effects of airborne particulate matter. Atmospheric Environment 15:431482.
- Lowther, P. E. 2000. Nuttall's Woodpecker (*Picoides nuttallii*). In The Birds of North America, No. 555 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.
- LSA. 2007. Solano Multispecies Habitat Conservation Plan. Version 2.2 Final Administrative Draft. Available online: <http://www.scwa2.com/hcp2.2.html>
- McCrimmon, D. A., Jr., J. C. Ogden, and G. T. Bancroft. 2001. Great Egret (*Ardea alba*). In The Birds of North America, No. 570 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.
- Napa Solano Audubon Society. 2007. Solano County Breeding Bird Atlas Handbook. Available online: [http://www.napasolanoaudubon.com/docs/Atlas\\_Handbook\\_Jan\\_07.pdf](http://www.napasolanoaudubon.com/docs/Atlas_Handbook_Jan_07.pdf)

National Oceanographic and Atmospheric Administration (NOAA). 2007. Central California Coast Coho ESU. June. Available online: <http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Coho/COCCA.cfm>

National Oceanographic and Atmospheric Administration (NOAA). 2007. Central California Coast Steelhead DPS. June 9. Available online: <http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Steelhead/STCCC.cfm>

National Oceanographic and Atmospheric Administration (NOAA). 2007. California Central Valley Steelhead DPS. June 9. Available online: <http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Steelhead/STCCV.cfm>

National Oceanographic and Atmospheric Administration (NOAA). 2007. California Central Valley Steelhead DPS. June 9. Available online: <http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Chinook/CKCVS.cfm>

National Oceanographic and Atmospheric Administration (NOAA). 2007. Sacramento River Winter-Run Chinook ESU. June 4. Available online: <http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Chinook/CKSAC.cfm>

National Oceanographic and Atmospheric Administration (NOAA). 2007. Central Valley Fall- and Late Fall-run Chinook ESU. June 13. Available online: <http://www.nwr.noaa.gov/ESA-Salmon-Listings/Salmon-Populations/Chinook/CKCVF.cfm>

Nolan, V., Jr., E. D. Ketterson, D. A. Cristol, C. M. Rogers, E. D. Clotfelter, R. C. Titus, S. J. Schoech, and E. Snajdr. 2002. Dark-eyed Junco (*Junco hyemalis*). In *The Birds of North America*, No. 716 (A. Poole and F. Gill, eds.). The Birds of North America, Inc., Philadelphia, PA.

Pahwa, Suresh B. and Brent L. Shipley, 1979. A Pilot Study to Detect Vegetation Stress Around a Cooling Tower. Intera Environmental Consultants, Inc.

Patten, Michael A., Guy McCaskie and Philip Unitt. 2003. *Birds of the Salton Sea: Status, biogeography, and ecology*. University of California Press. Berkeley, California.

Sawyer, J. O., and T. Keeler-Wolf. 1995. *A manual of California vegetation*. California Native Plant Society. Sacramento, California. Available online: <http://www.cnps.org/cnps/vegetation/manual.php>

Skinner, M.W. and B.M. Pavlik (eds). 1994. *Inventory of Rare and Endangered Vascular Plants of California*. California Native Plant Society Special Publication No. 1 (Fifth edition). Sacramento, California. 338 pp.

Telfair, R. C. II. 1994. Cattle Egret (*Bubulcus ibis*). In *The Birds of North America*, No. 113 (A. Poole, and F. Gill, eds.). The Academy of Natural Sciences, Philadelphia, PA, and The American Ornithologists' Union, Washington, D.C.

United States Department of Agriculture (USDA), Forest Service. 1997. *Ecological Subregions of California*. Scott Miles and Charles Goudey (editors). Pacific Southwest Division. R5-EM-TP-005. San Francisco.

U.S. Fish and Wildlife Service (USFWS). 1970. Federal Register, Department of the Interior, Fish and Wildlife Service. United States List of Endangered Fish and Wildlife. 50 CFR Part 17. 35 FR 16047-16048. October 13.

U.S. Fish and Wildlife Service (USFWS). 2005. Species account for Alameda whipsnake *Masticophis lateralis euryxanthus*. Sacramento. March 21 Available online:  
[http://www.fws.gov/sacramento/es/animal\\_spp\\_acct/alameda\\_whipsnake.htm](http://www.fws.gov/sacramento/es/animal_spp_acct/alameda_whipsnake.htm)

U.S. Fish and Wildlife Service (USFWS). 1978. Impacts of coal-fired power plants on fish, wildlife, and their habitats. U.S. Department of the Interior, FWSI OBS-78D9,260 pp.

U.S. Fish and Wildlife Service (USFWS). 1997. Programmatic Formal Consultation for U.S. Army Corps of Engineers 404 Permitted Projects with Relatively Small Effects on the Giant Garter Snake within Butte, Colusa, Glenn, Fresno, Merced, Sacramento, San Joaquin, Solano, Stanislaus, Sutter and Yolo Counties, California. November 13.

U.S. Fish and Wildlife Service (USFWS). 1996. U.S. Fish and Wildlife Service (USFWS). 1996. Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates for Listing as Endangered or Threatened Species; Notice of Review; Proposed Rule. Federal Register 61(40): 7596-7613.

U.S. Fish and Wildlife Service (USFWS). 1999. Draft Recovery Plan for the Giant Garter Snake (*Thamnophis gigas*). U.S. Fish and Wildlife Service, Portland, OR. ix+192 pp.

U.S. Fish and Wildlife Service (USFWS). 2007. Species account for California red-legged frog (*Rana aurora draytonii*). Sacramento. October 10. Available online:  
[http://www.fws.gov/sacramento/es/animal\\_spp\\_acct/ca\\_red-legged\\_frog.pdf](http://www.fws.gov/sacramento/es/animal_spp_acct/ca_red-legged_frog.pdf)

U.S. Fish and Wildlife Service (USFWS). 2007. Species account for Delta Smelt (*Hypomesus transpacificus*). Sacramento. October 19. Available online:  
[http://www.fws.gov/sacramento/es/animal\\_spp\\_acct/delta\\_smelt.pdf](http://www.fws.gov/sacramento/es/animal_spp_acct/delta_smelt.pdf)

U.S. Fish and Wildlife Service (USFWS). 2008. Species account for California tiger salamander (*Ambystoma californiense*). Sacramento. February 1. Available online:  
[http://www.fws.gov/sacramento/es/animal\\_spp\\_acct/california\\_tiger\\_salamander.pdf](http://www.fws.gov/sacramento/es/animal_spp_acct/california_tiger_salamander.pdf)

U.S. Fish and Wildlife Service (USFWS). 2008. National Wetlands Inventory (NWI) website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C.  
<http://www.fws.gov/nwi/>

Vaughan, B.E., et al. 1975. Review of potential impacts to Health and Environmental Quality from Metals Entering the Environment as a Result of Coal Utilization. Battelle Energy Progress Report, Pacific Northwest Laboratories. Battelle Memorial Institute, Richland, WA. 75 pp.

WhatBird. 2008. Available online: <http://www.whatbird.com/>

TABLE 5.2-1  
Wildlife Species Observed in the CPVVS Site

Scientific Name	Common Name	Status				Range/Habitat requirements
		Federal	State	CDFG	SMHCP	
<b>Reptiles</b>						
<i>Sceloporus occidentalis</i>	Western fence lizard					
<b>Birds</b>						
<b>Anseriformes</b>						
<i>Anas platyrhynchos</i>	Mallard	MBTA			No	Typically, fresh water ponds, rivers, and marshes with bordering of tules and cattails. Irrigated territory decidedly attractive. Nest sites are commonly on damp ground in concealing cover, but also may be in general vicinity of water on dry land. (Grinnell and Miller, 1944)
<b>Galliformes</b>						
<i>Phasianus colchicus</i>	Ring-necked Pheasant					
<b>Pelecaniformes</b>						
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	MBTA			No	Fresh, brackish and salt waters with fish. Roosting places both for daytime and night must be within easy cruising radius to permit periodic drying of plumage. Breeding requirements are sequestered islets or tall trees at lake margins. Ground nests usually are on sloping surfaces. (Grinnell and Miller, 1944)
<b>Ciconiiformes</b>						
<i>Cathartes aura</i>	Turkey Vulture	MBTA			No	Forages over more or less open terrain of mountain sides, hills, plains, sea-beaches and deserts. For perches when roosting, uses trees with open branch-work. For nesting, prefers rocks or brush on steep hillsides, or cavities in cliff-faces. (Grinnell and Miller, 1944)
<b>Falconiformes</b>						
<i>Elanus leucurus</i>	white-tailed kite	MBTA	FP		No	Of two sorts: low rolling foothills or valley margins with valley or live oaks; and river bottomlands or marshes adjacent to scattered deciduous woodland. An essential combination of conditions seems to be open grasslands, meadows or marshes for foraging, and near-by isolated dense-topped trees for perching and nesting. (Grinnell and Miller, 1944)

TABLE 5.2-1  
Wildlife Species Observed in the CPVVS Site

Scientific Name	Common Name	Status				Range/Habitat requirements
		Federal	State	CDFG	SMHCP	
<i>Circus cyaneus</i>	northern harrier	MBTA		SC	Yes	Characteristically, marshlands, both coastal salt, and freshwater. Forages also over grasslands in general, from patches of salt-grass in desert sinks, and dry prairie, to mountain cienagas. (Grinnell and Miller, 1944)
<i>Buteo swainsoni</i>	Swainson's hawk	MBTA	ST		Yes	Dry plains and open foothill territory. Sparsest woodland or scattering small trees sufficient for nesting needs. (Grinnell and Miller, 1944)
<i>Buteo jamaicensis</i>	Red-tailed Hawk	MBTA			No	Terrain affording food ordinarily in form of rodents, and nesting sites in trees or on cliffs more or less inaccessible to potential despoilers. Interspersed woodland and open grassland, the latter in predominance, may be ideal. (Grinnell and Miller, 1944)
<i>Falco sparverius</i>	American Kestrel	MBTA			No	Typically, open terrain such as plains, deserts, fields, meadows and unforested portions of mountain-sides, where ground surface affords adequate prey-supply, but only where perching places are present. For nesting, holes in trees either dug by the larger woodpeckers or "natural," crevices in cliffs, or holes in earth banks, are required; also utilizes magpie nests. (Grinnell and Miller, 1944)
<b>Gruiformes</b>						
<i>Charadrius vociferus</i>	Killdeer	MBTA			No	Chiefly vicinity of fresh water, either along shores of lakes, ponds, rain pools or streams, or on moist meadowlands adjacent; resorts to irrigated lands, alfalfa fields, and lawns that are kept sprinkled. (Grinnell and Miller, 1944)
<b>Columbiformes</b>						
<i>Streptopelia decaocto</i>	Eurasian collared-dove	MBTA				Widespread. Range is extended from published species descriptions.
<i>Zenaida macroura</i>	Mourning Dove	MBTA			No	Characteristically, an open type of deciduous woodland, or interspersed grassland and sparse chaparral. However, foraging for seeds of herbs carries the doves onto all sorts of open ground, as on plains and deserts far from water. (Grinnell and Miller, 1944)

TABLE 5.2-1  
Wildlife Species Observed in the CPVVS Site

Scientific Name	Common Name	Status				Range/Habitat requirements
		Federal	State	CDFG	SMHCP	
<b><i>Passeriformes</i></b>						
<i>Tyrannus verticalis</i>	Western Kingbird	MBTA			No	Dry open situations where one or two trees provide out-look posts and roosting and nesting sites. In lieu of trees, derricks, windmills, telephone or power poles, or even fence-posts are used. (Grinnell and Miller, 1944)
<i>Lanius ludovicianus</i>	Loggerhead Shrike	MBTA		SC	No	Open terrain with well spaced lookout posts, at least two feet high. West of the Sierra Nevada, farm lands in the valleys and on rolling hills offer favorable habitat. (Grinnell and Miller, 1944)
<i>Pica nuttalli</i>	Yellow-billed Magpie	MBTA			No	Broad expanses of open ground, valley floors or hills of gentle slope, and large trees either scattering, in linear arrangement as where bordering stream courses, or as forming open park-like groves. Although omnivorous, food in adequate amount inclusive of large insects must be present through the annual cycle to hold a local population. (Grinnell and Miller, 1944)
<i>Corvus brachyrhynchos</i>	American Crow	MBTA			No	Restricted to valleys and rolling hills affording both extensive tracts of bare, chiefly open alluvial ground and tracts of woodland with trees large enough to support nests in the breeding season. (Grinnell and Miller, 1944)
<i>Corvus corax</i>	Common Raven	MBTA			No	Requires large areas of open or semi-open terrain for foraging, as well as cliff faces, bluffs or sea-walls which provide safe niches for nests. Substitutes are afforded by trees, deserted barns and windmills, and oil derricks. Seashore, desert floor, open upland, or sequestered mountain meadow all provide productive foraging habitat. (Grinnell and Miller, 1944)
<i>Turdus migratorius</i>	American Robin	MBTA			No	In nesting season, meadows and moist stream-sides, or lawns, gardens and soft cultivated ground, with adjoining, open or scattered trees for nest sites. (Grinnell and Miller, 1944)
<i>Mimus polyglottos</i>	Northern Mockingbird	MBTA			No	As a rule, level terrain scatteringly grown to large bushes or small, stiff twigged, dense-foliaged trees. This type of growth is required for nest sites and for roosting and refuge purposes, in part for foraging. (Grinnell and Miller, 1944)
<i>Sturnus vulgaris</i>	European starling					

TABLE 5.2-1  
Wildlife Species Observed in the CPVVS Site

Scientific Name	Common Name	Status				Range/Habitat requirements
		Federal	State	CDFG	SMHCP	
<i>Passerculus sandwichensis</i>	Savannah Sparrow	MBTA			No	Of two main types: most importantly the Salicornia association of tidal marshlands, and secondarily upland grassy slopes in the coastal fog belt. Nests on tidal land are ensconced in the tangled vegetation, usually slightly above the mud so that flooding except by the highest spring tides is avoided (Grinnell and Miller, 1944)
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	MBTA			No	In nesting season, fresh- and brackish-water marshes, lake margins, vicinities of lowland streams, wet pastures, and grain and mustard fields near or over moist ground or small seeps of water. Nesting cover most commonly is provided by tule patches, cattails, willow thickets, mustard, and heavy stands of grasses, and sites range normally from 5 inches to 6 feet above ground; occasionally nests are placed in the crowns of trees such as oaks. (Grinnell and Miller, 1944)
<i>Agelaius tricolor</i>	tricolored blackbird	MBTA		SC	Yes	In nesting season, vicinity of fresh water, especially marshy areas. The most favored sites for colonies are heavy growths of cattails and tules, but other vegetation may be resorted to for nesting. Nests have even been found on the ground. (Grinnell and Miller, 1944)
<i>Sturnella neglecta</i>	Western Meadowlark	MBTA			No	Grassy plains, hill slopes and meadowlands in which grass is present in large tracts and is thick or deep enough to permit concealment by crouching. Grass and low annual plants may be moderately intermixed with bushes. Various cultivated crops, particularly alfalfa, provide the requirements otherwise found in native grasslands. (Grinnell and Miller, 1944)
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird	MBTA			No	In the spring season, grassland, meadows, or moist lake and stream margins, with trees or tall bushes. Nest emplacements vary greatly; occasionally the ground is used and numerous instances of nesting in crevices in stumps have been reported. Most favored nest sites are in dense masses of foliage. (Grinnell and Miller, 1944)

TABLE 5.2-1  
Wildlife Species Observed in the CPVVS Site

Scientific Name	Common Name	Status				Range/Habitat requirements
		Federal	State	CDFG	SMHCP	
<i>Molothrus ater</i>	Brown-headed Cowbird	MBTA			No	River bottomlands primarily, especially where pastures or meadowlands lie adjacent to tracts of willows and cottonwoods; also invades orchard and suburban areas. Forages mostly on open ground, often in vicinity of cattle, but roosts in trees. In breeding season seeks fosterers mostly among those passerine species which nest in riparian growths; but the total number of birds in the nests of which this cowbirds' eggs have been found in California is very large and inclusive of species of almost every ecologic niche anywhere in the general breeding area. (Grinnell and Miller, 1944)
<i>Carpodacus mexicanus</i>	House Finch	MBTA			No	Remarkably varied, the following apparent requirements being met by a great diversity of situations: (1) water, with fruits perhaps forming a satisfactory substitute; (2) open ground with low seed-producing plants; (3) fruits and berries during part of year (possibly not essential); (4) trees, cliffs and earth banks, or man-made structures for roosting and placement of nests above ground. Open places and sunshine are favored and in the foothill districts, great interior valleys and coastal plains the House Finch is the predominant avian species in fields and orchards, and about scattered trees and ranch buildings. (Grinnell and Miller, 1944)

Notes:

Federal Status

FE = federally listed as endangered

FT = federally listed as threatened

MBTA = Migratory Bird Treaty Act

BGEPA = Bald and Golden Eagle Protection Act

State Status

SE = State listed as endangered

ST = State listed as threatened

SC = State species of concern

FP = State fully protected species

SSA = State Special Animal

Solano Habitat Conservation Plan (SHCP)

Yes = covered species

No = not a covered species

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<b>Invertebrates</b>								
<i>Danaus plexippus</i>	monarch butterfly		SSA		No	Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts are located in wind protected tree groves (eucalyptus, Monterey pine, cypress), with nectar and water sources nearby (CNDDDB 2008).	Low	The CPVVS site is not within the known roosting range of this species, and no suitable roosting habitat was observed at the site during field surveys; however, this species may fly through the CPVVS site.
<b>Reptiles</b>								
<i>Thamnophis gigas</i>	giant garter snake	FT	ST		Yes	Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals and irrigation ditches (CNDDDB 2008).	Moderate	Suitable aquatic and upland foraging habitat occurs in drainage canals and irrigation ditches within the 1-mile survey area.
<b>Birds</b>								
<b>Anseriformes</b>								
<i>Branta canadensis</i>	Canada Goose		MBTA		No	May forage along lower creek channels and on to grasslands in surrounding open country. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Aix sponsa</i>	Wood Duck		MBTA		No	Exclusively fresh-water areas; preferably slow moving, lower parts of rivers, and secluded bottomland sloughs and ponds, especially where screened by deciduous trees. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Anas strepera</i>	Gadwall		MBTA		No	Rivers, ponds and fresh-water swamplands. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Anas platyrhynchos</i>	Mallard		MBTA		No	Typically, fresh water ponds, rivers, and marshes with bordering of tules and cattails. Irrigated territory decidedly attractive. Nest sites are commonly on damp ground in concealing cover, but also may be in general vicinity of water on dry land. (Grinnell and Miller, 1944)	Present	This species has been observed foraging in the basin to the north of the CPVVS site.
<i>Anas discors</i>	Blue-winged Teal		MBTA		No	Vicinity of fresh-water ponds and slow-flowing streams. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Anas cyanoptera</i>	Cinnamon Teal		MBTA		No	Vicinity of tule and grass-bordered ponds, sloughs, slow-flowing streams, reservoirs, and irrigation canals. Restricted to fresh water. Nest sites may be in tules near the water surface or on dry land at some distance from water. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Anas clypeata</i>	Northern Shoveler		MBTA		No	Breeds in open, shallow wetlands. In winter, inhabits both freshwater and saline marshes. Nest consists of a simple scrape lined with down and usually surrounded on at least three sides by vegetation. Placed in short vegetation near water. (Dubowy 1996).	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Anas acuta</i>	Northern Pintail		MBTA		No	Typically, fresh-water ponds and marshes, and adjacent grasslands. Nest sites are situated usually on dry ground near ponds or lakes. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Anas crecca</i>	Green-winged Teal		MBTA		No	Prefers shallow ponds with lots of emergent vegetation. Along the coast, it prefers tidal creeks, mudflats, and marshes to more open water. (Johnson 1995)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Oxyura jamaicensis</i>	Ruddy Duck	MBTA			No	In summer, tule-bordered ponds and lakes; in winter, these and also brackish and salt-water bodies, including coastal bays. Nests are placed among tules, on or built up from the water's surface. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<b>Podicipediformes</b>								
<i>Podilymbus podiceps</i>	Pied-billed Grebe	MBTA			No	Typically, small fresh-water ponds with insects, crustaceans or small fishes and at least in part bordered by dense palustrine vegetation; but also, in winter season, larger bodies of open water; salt as well as fresh. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Aechmophorus occidentalis</i>	Western Grebe	MBTA			No	Nesting lakes are characterized by a fair depth of open water, by an adequate fish fauna, and by bordering growths of rushes or tules. Favorable waters for wintering may be salt, brackish or fresh, just so fishes of small size be present. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Aechmophorus clarkii</i>	Clark's Grebe	MBTA			No	In winter Clark's Grebes are found mostly on saltwater bays. During the breeding season they prefer freshwater wetlands with a mix of open water and emergent vegetation. Clark's Grebes tend to forage farther from shore and in deeper water than Western Grebes. (BirdWeb, 2008)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<b>Pelecaniformes</b>								
<i>Pelecanus erythrorhynchos</i>	American White Pelican	MBTA		SC	No	Typically, fresh-water lakes affording fishes of relatively large size and safe roosting and breeding places in the form of well-sequestered islets; also, at nonbreeding times frequents river sloughs and seacoast bays of similar food resource. (Grinnell and Miller, 1944)	High	This species has been observed gliding near the CPVVS site during field surveys. The nearest nest occurrence (CNDDDB occ. # 1) is reported 242 miles north of the CPVVS site.
<i>Pelecanus occidentalis californicus</i>	California brown pelican	FE, MBTA		FP	No	Typically, the ocean littoral, just outside the surf-line. Rarely strays either inland or far offshore. For nesting, coastal islands of small or moderate size where immunity from attacks of ground-dwelling predators is afforded. (Grinnell and Miller, 1944)	None	No nesting or foraging habitat was observed within the CPVVS site during field surveys. This species requires open water and shoreline habitat for nesting and foraging, neither of which occurs in proximity to the CPVVS site. This species is not expected to occur in the CPVVS site.
<i>Phalacrocorax auritus</i>	Double-crested Cormorant	MBTA			No	Fresh, brackish and salt waters with fish. Roosting places both for daytime and night must be within easy cruising radius to permit periodic drying of plumage. Breeding requirements are sequestered islets or tall trees at lake margins. Ground nests usually are on sloping surfaces. (Grinnell and Miller, 1944)	Present	This species has been observed flying over the CPVVS site.
<b>Ciconiiformes</b>								
<i>Botaurus lentiginosus</i>	American Bittern	MBTA			No	Typically, fresh-water marshlands and lake margins with tules and rushes. Cover is almost continually utilized. Nest sites are afforded within sedge clumps and tule patches close to the surface of damp ground or of water. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Ardea herodias</i>	Great Blue Heron	MBTA			No	Foraging areas include swamps, lake margins, tide-flats, kelp-beds, rivers and streams, irrigation ditches and damp meadowlands. Nesting sites include tall trees, cliffsides, and sequestered spots on marshes, both salt and fresh water. (Grinnell and Miller, 1944)	Moderate	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Ardea alba</i>	great egret	MBTA			No	Nests in colonies with other species, in shrubs and trees over water, and on islands. Feeds in variety of wetlands, including marshes, swamps, streams, rivers, ponds, lakes, tide flats, canals, and flooded fields. Nests in colonies with other herons. Nest placed in trees or shrubs, made of sticks covered with green material. (McCrimmon et. al, 2001)	Moderate	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Egretta thula</i>	Snowy Egret	MBTA			No	Marshes, tide-flats, stream courses, and borders of lakes. Nesting sites are situated in sequestered, dense tule beds. (Grinnell and Miller, 1944)	Moderate	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Bubulcus ibis</i>	Cattle Egret	MBTA			No	Breeds in colonies with other herons on islands, isolated woods, and swamps. Found foraging in many habitats, terrestrial and aquatic, such as ponds, cattle pasture, roadsides, farmland, dumps, parks, sports fields, and lawns. Nest is a shallow, bowl-shaped nest of sticks placed in trees and shrubs in colonies with other herons (Telfair 1994).	Moderate	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Butorides virescens</i>	Green Heron	MBTA			No	Willow-bordered sloughs, slow-flowing streams, and lakes; restricted to freshwater. Shaded areas are usually chosen or both roosting and foraging. More commonly found on elevated perches than on the ground. Nests are placed in willows, often in fairly dense tangles of branches in the crowns of middle-aged trees. (Grinnell and Miller, 1944)	Moderate	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	MBTA			No	Various wetland habitats, including salt, brackish, and freshwater marshes, swamps, streams, lakes, and agricultural fields. A platform of sticks placed in tree or cattails. Nests colonially; more than a dozen nests may be in a single tree (Davis 1993).	Moderate	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Plegadis chihi</i>	White-faced Ibis	MBTA			No	Preferred habitats include salt and fresh marshes in the west, and coastal marshes. (WhatBird, 2008)	Moderate	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Cathartes aura</i>	Turkey Vulture	MBTA			No	Forages over more or less open terrain of mountain sides, hills, plains, sea-beaches and deserts. For perches when roosting, uses trees with open branch-work. For nesting, prefers rocks or brush on steep hillsides, or cavities in cliff-faces. (Grinnell and Miller, 1944)	Present	This species has been observed foraging above the CPVVS site.
<b>Falconiformes</b>								
<i>Elanus leucurus</i>	white-tailed kite	MBTA	FP		No	Of two sorts: low rolling foothills or valley margins with valley or live oaks; and river bottomlands or marshes adjacent to scattered deciduous woodland. An essential combination of conditions seems to be open grasslands, meadows or marshes for foraging, and near-by isolated dense-topped trees for perching and nesting. (Grinnell and Miller, 1944)	Present	This species has been observed foraging in the CPVVS site during field surveys. No suitable nesting trees are present within the project site; the nearest suitable nesting habitat is in large trees in the Alamo Creek riparian woodland. The nearest white-tailed kite occurrence reported in the CNDDDB (occurrence #58) was a nest observed 3 miles north of the CPVVS site in a row of osage oranges.
<i>Circus cyaneus</i>	northern harrier	MBTA		SC	Yes	Characteristically, marshlands, both coastal salt, and freshwater. Forages also over grasslands in general, from patches of salt-grass in desert sinks, and dry prairie, to mountain cienagas. (Grinnell and Miller, 1944)	Present	This species has been observed foraging in the CPVVS site. The nearest northern harrier occurrence reported in the CNDDDB (occurrence #31) is a nest observed 12 miles southwest of the CPVVS site in coastal brackish marsh.
<i>Accipiter striatus</i>	Sharp-shinned Hawk	MBTA			No	In summer, either deciduous or coniferous woodland, not dense forest but at edges or where broken; in winter, all sorts of vegetational areas, save open prairie and bare desert. (Grinnell and Miller, 1944)	Moderate	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Accipiter cooperii</i>	Cooper's Hawk	MBTA			No	Woodland, chiefly of open, interrupted or marginal type. Nesting sites are predominantly in riparian growths of deciduous trees, as in canyon bottoms and on river flood-plains, although live oaks often are used. (Grinnell and Miller, 1944)	Moderate	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Buteo lineatus</i>	Red-shouldered Hawk	MBTA			No	Restricted and distinctive: deciduous woodland of broad, lowland river bottoms, especially where interrupted by, or adjacent to, damp grasslands or marshes. (Grinnell and Miller, 1944)	Moderate	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Buteo swainsoni</i>	Swainson's hawk	MBTA	ST		Yes	Dry plains and open foothill territory. Sparsest woodland or scattering small trees sufficient for nesting needs. (Grinnell and Miller, 1944)	Present	This species has been observed foraging in the CPVVS site during field surveys. No suitable nesting trees are present within the project site. The nearest suitable nesting habitat is in large trees in the Alamo Creek riparian woodland, where several nests have been reported; however, no nests were observed during protocol field surveys. The nearest Swainson's hawk occurrence reported in the CNDDDB (occurrence #1303) was observed 0.5 miles north of the CPVVS site in a Eucalyptus tree adjacent to an alfalfa field.
<i>Buteo jamaicensis</i>	Red-tailed Hawk	MBTA			No	Terrain affording food ordinarily in form of rodents, and nesting sites in trees or on cliffs more or less inaccessible to potential despoilers. Interspersed woodland and open grassland, the latter in predominance, may be ideal. (Grinnell and Miller, 1944)	Present	This species has been observed foraging in the CPVVS site
<i>Buteo regalis</i>	ferruginous hawk	MBTA			No	Characteristically, open terrain, of plains and foothills; grassland affording adequate prey, most especially ground squirrels. (Grinnell and Miller, 1944)	Moderate	Suitable foraging habitat for this species occurs within the CPVVS site.
<i>Aquila chrysaetos</i>	Golden Eagle	BGEPA, MBTA	FP		No	Typically, rolling foothill or coast-range terrain, where open grassland inhabited by ground squirrels and jack rabbits is scatteringly grown to oak trees, sycamores, or large digger pines. Cliff-walled canyons afford nesting habitat in some areas. (Grinnell and Miller, 1944)	Moderate	Suitable foraging habitat for this species occurs within the CPVVS site. The nearest golden eagle occurrence reported in the CNDDDB (occurrence #40) is a nest observed in high cliffs 21 miles southwest of the CPVVS site.
<i>Falco sparverius</i>	American Kestrel	MBTA			No	Typically, open terrain such as plains, deserts, fields, meadows and unforested portions of mountain-sides, where ground surface affords adequate prey-supply, but only where perching places are present. For nesting, holes in trees either dug by the larger woodpeckers or "natural," crevices in cliffs, or holes in earth banks, are required; also utilizes magpie nests. (Grinnell and Miller, 1944)	Present	This species has been observed foraging within the CPVVS site
<i>Falco peregrinus</i>	Peregrine Falcon	MBTA	FP		No	Vicinity of sea-cliffs, both on islands and mainland coast, and of cliffs inland. A long cruising radius carries foraging individuals very many miles, over ocean and bays, and over lakes and valley marshlands. (Grinnell and Miller, 1944)	Moderate	No nesting habitat was observed within the CPVVS site during field surveys; however, this species may forage at the site or fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Falco mexicanus</i>	Prairie Falcon	MBTA			No	As a rule, dry open terrain, either level or hilly. Breeds in cliffs affording nesting niches. Cruising radius long, even to marshlands or ocean shores. (Grinnell and Miller, 1944)	Moderate	Suitable foraging habitat for this species occurs within the CPVVS site.
<b>Gruiformes</b>								
<i>Gallinula chloropus</i>	Common Moorhen	MBTA			No	Tule-grown borders of ponds and sluggish streams of lowlands; closely restricted to fresh-water areas. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Fulica americana</i>	American Coot	MBTA			No	Breeds on fresh-water lakes, ponds and slow-moving streams, mostly those bordered by thick growths of cattails, tules or rushes. Forages on and near these waters; also prone to appear on transient rain pools or irrigation overflow. In winter, visits salt water of sheltered coastal bays and estuaries. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Charadrius vociferus</i>	Killdeer	MBTA			No	Chiefly vicinity of fresh water, either along shores of lakes, ponds, rain pools or streams, or on moist meadowlands adjacent; resorts to irrigated lands, alfalfa fields, and lawns that are kept sprinkled. (Grinnell and Miller, 1944)	Present	This species has been observed within the CPVVS site. suitable nesting and foraging habitat occurs in the project site.
<i>Himantopus mexicanus</i>	Black-necked Stilt	MBTA			No	Typically, open marshlands; margins of shallow bodies of water, permanent or merely rain-pools, whether fresh, brackish, stagnant or strongly alkaline. Irrigated grazing lands are favorable. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Recurvirostra americana</i>	American Avocet	MBTA			No	Interior, open marshlands, fresh or alkaline, especially where there are expanses of shallow water with included low "islands or mud reefs." Flooded grazinglands. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Actitis macularius</i>	Spotted Sandpiper	MBTA			No	In summer and inland, typically sand-bars or gravel-bars along courses of streams and sandy stretches around margins of fresh-water lakes; in winter, chiefly sea-shores that are gravelly, pebbly or rocky, but also as in summer. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Phalaropus tricolor</i>	Wilson's Phalarope	MBTA			No	Marshlands, usually fresh-water ones where there is some open, shallow water and where the vegetation is low. In migrations includes brackish, even salt playas and bay shores (Grinnell and Miller, 1944).	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Larus occidentalis</i>	Western Gull	MBTA			No	Immediate seacoast. Nests both on islets and on mainland seacliffs. Forages along beach-lines and up estuaries, but not beyond tidal influence. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Sternula (=Sterna, =albifrons) antillarum</i>	California least tern	FE, MBTA	FP		No	For nesting, sandy, upper sea-beaches, or, rarely, inside mud-flats; for foraging, adjacent open ocean, surf-line or estuaries. (Grinnell and Miller, 1944)	None	No nesting or foraging habitat was observed within the CPVVS site during field surveys. This species requires open water and shoreline habitat for nesting and foraging, neither of which occurs in proximity to the CPVVS site. This species is not expected to occur in the CPVVS site.
<i>Hydroprogne caspia</i>	Caspian Tern	MBTA			No	Typically inland, where fresh-water lakes and marshes afford fishes for food; but also brackish or salt waters of coastal estuaries and bays. No record for ocean off mainland shore. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Sterna forsteri</i>	Forster's Tern	MBTA			No	In summer, fresh-water marshlands; in migrations and in winter, sandy seashores, bays, marshes (both fresh and salt), and shallow-bordered lakes. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<b>Charadriiformes</b>								
<i>Charadrius montanus</i>	mountain plover	MBTA		SC	Yes	Plains and low, rolling hills, either where sparsely grown to short grass or essentially barren of vegetation, irrespective of presence of water. Resorts at times to newly ploughed or sprouting grain fields. (Grinnell and Miller, 1944)	Moderate	Suitable nesting and foraging habitat for this species occurs within the CPVVS site. The nearest nest occurrence (CNDDDB occ. # 5) is reported 7 miles southeast of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<b>Columbiformes</b>								
<i>Patagioenas fasciata</i>	Band-tailed Pigeon	MBTA			No	In summer, chiefly open oak woodlands, often where mixed with conifers. In winter descends to areas with interior and coast live oaks, blue oaks and valley oaks. Wandering flocks seek fruits of madrone, toyon, manzanita, elderberry, coffee-berry and chokecherry; also they may resort to grain fields, vineyards and cherry orchards. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Streptopelia decaocto</i>	Eurasian collared-dove	MBTA				Widespread. Range is extended from published species descriptions.	Present	This species has been observed perched near the CPVVS site and can be expected to forage or fly through the CPVVS site.
<i>Zenaida macroura</i>	Mourning Dove	MBTA			No	Characteristically, an open type of deciduous woodland, or interspersed grassland and sparse chaparral. However, foraging for seeds of herbs carries the doves onto all sorts of open ground, as on plains and deserts far from water. (Grinnell and Miller, 1944)	Present	This species has been observed foraging within the CPVVS site
<b>Strigiformes</b>								
<i>Tyto alba</i>	Barn Owl	MBTA			No	Requirements include three essential factors: (1) grassland, hay fields, or open hillsides that are productive of small to medium-sized mammals in sufficient abundance for food; (2) thick-foliaged trees, or brush thickets, or buildings for day roosting; and (3) cavities for breeding, such as holes in cliffs, earth banks, tree-trunks, and, human-built structures. (Grinnell and Miller, 1944)	Moderate	Suitable foraging habitat for this species occurs within the CPVVS site.
<i>Megascops kennicottii</i>	Western Screech-Owl	MBTA			No	Typically, more or less broken woodland. Preference is shown for belts of oak trees of various kinds; but also any sort of tree species suffices which provides the "natural" or woodpecker-excavated cavities of the right size for daytime shelter and for nesting. (Grinnell and Miller, 1944)	Moderate	Suitable foraging habitat for this species occurs within the CPVVS site.
<i>Bubo virginianus</i>	Great Horned Owl	MBTA			No	Of wide variety; perhaps most usual, woodland especially of oaks, or broken type of forest, with open ground included or adjacent. Also, cliff-sided canyons; broad washes if with trees such as cottonwood and sycamore containing old hawks' nests; almost any locality affording sheltered daytime roosting places and nesting sites up from the level ground. (Grinnell and Miller, 1944)	Moderate	Suitable foraging habitat for this species occurs within the CPVVS site.
<i>Glaucidium gnoma</i>	Northern Pygmy-Owl	MBTA			No	Woodland; broken forest, or mixed coniferous and deciduous woods; margins of redwood or Douglas spruce forest. Presence of woodpecker-excavated nesting cavities, of about flicker-size, a requisite for breeding. (Grinnell and Miller, 1944)	Low	No nesting habitat was observed within the CPVVS site during field surveys; however, this species may forage or fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Athene cunicularia</i>	burrowing owl	MBTA		SC	Yes	Open, dry, nearly or quite level, grassland; prairie; desert floor. Depends on insect and reptilian food sources. Dependence on larger burrowing mammals, notably the California ground squirrel. (Grinnell and Miller, 1944)	Moderate	Several occurrences of this species are reported in the project area. No burrowing owls or suitable nesting habitat was observed at the site during protocol field surveys; however, this species may forage at the site and may fly over the site while transitioning from suitable habitat located outside of the CPVVS site. The nearest burrowing owl occurrence reported in the CNDDDB (occurrence #962) was observed 1.5 miles north of the CPVVS site at the top of a drainage ditch adjacent to a fallow field and across a road from an alfalfa field.
<i>Asio flammeus</i>	short-eared owl	MBTA		SC	Yes	Swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields. Tule patches or tall grass needed for nesting and for day-time seclusion. (Grinnell and Miller, 1944)	Moderate	Suitable foraging habitat for this species occurs within the CPVVS site. The nearest nest occurrence (CNDDDB occ. # 12) is reported 11 miles south of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<b>Caprimulgiformes</b>								
<i>Phalaenoptilus nuttallii</i>	Common Poorwill	MBTA			No	Typically, broken, Upper Sonoran chaparral. Nesting and daytime roosting places are on bare ground in more or less complete shade; forages low along openings, lanes, roads or trails. A very frequent plant associate is chamise ( <i>Adenostoma</i> ); others are scrub-oak, coffee-berry ( <i>Rhamnus</i> ), and, in coast belt, coyote-brush ( <i>Baccharis</i> ). (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<b>Apodiformes</b>								
<i>Aeronautes saxatalis</i>	White-throated Swift	MBTA			No	For roosting and nesting, deep crevices in faces of cliffs, bluffs, canyon walls; For foraging, large daily cruising radius. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Archilochus alexandri</i>	Black-chinned Hummingbird	MBTA			No	Nests chiefly among deciduous trees along stream bottoms, especially in canyons; also, irrigated orchards. Near presence of water thus appears to be a requirement for nest location. Both sexes, and young, forage about many kinds of flowering shrubs and vines. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Calypte anna</i>	Anna's Hummingbird	MBTA			No	Broken chaparral or woodland; or, mixed woodland and chaparral, in open stand. This definition holds on an average in primitive situations for the breeding season (December to April). When foraging, or at non-breeding seasons, the birds cruise far and wide; then, absence or presence controlled by kind and abundance of preferred flowers. (Grinnell and Miller, 1944)	High	This species has been observed flying near the CPVVS site and can be expected to forage or fly through the CPVVS site.
<i>Selasphorus sasin</i>	Allen's Hummingbird	MBTA			No	In breeding season, as a rule ravines or canyons, wherein the males maintain territorial stations overlooking "soft chaparral," while the females resort to willows, blackberry tangles or beds of brakes along the bottoms for nesting, but departures are common. In migrations, a great variety of flowering herbs, shrubs and trees serves. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<b>Coraciiformes</b>								
<i>Ceryle alcyon</i>	Belted Kingfisher	MBTA			No	Immediate vicinity of waters, fresh or salt, that furnish small fishes; in other words, lakes, ponds, larger streams, and the seacoast including bays, harbors, and even shores of islands. A requisite for breeding is presence of friable, earthen or sandy banks or bluffs above water. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<b>Piciformes</b>								
<i>Melanerpes formicivorus</i>	Acorn Woodpecker	MBTA			No	Woodland, or mixed woods, usually of scattering type, composed of, or at least including, oak trees of one kind or another. The oaks provide food, shelter, perching places, sites for nesting holes, and storage sites. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Picoides nuttallii</i>	Nuttall's Woodpecker	MBTA			No	Found primarily in oak woodlands and in riparian woods; rarely in conifers. Feeds on insects and arthropods, some fruit. Nest in cavity in trees. (Lowther 2000)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Picoides pubescens</i>	Downy Woodpecker	MBTA			No	Markedly restricted to riparian soft-woods, willow and cottonwood; this involves use for all purposes, foraging, nesting, roosting, shelter. Thus the lowland stream-bottoms constitute the main areas of activity of this woodpecker. Branches or boles of any of these trees must be far advanced in decay to be excavatable for nest or shelter purposes. Repeatedly, elimination of all such diggable wood in a given neighborhood has been observed to be followed by disappearance of the birds. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Picoides villosus</i>	Hairy Woodpecker	MBTA			No	Roughly, montane forests; but within and adjacent to these, this species affects preferentially open or broken or burned woods of old growth, where there are many dead or partly dead trees. Both conifers, of almost all kinds, and deciduous trees are attractive, of the latter, especially cottonwood and large willow, as these line stream courses. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Colaptes auratus</i>	Northern Flicker	MBTA			No	Exceedingly varied, more so than for any other woodpecker: semi-open terrain, either stream bottom or hill- or mountainside, where trees, some of them dead and decaying, stand on or closely adjacent to grassland. A requisite for nesting, is a tree-trunk of relative softness of wood, either by reason of advanced stage of decay or because of natural softness. Foraging extends to a wide variety of situations. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Dryocopus pileatus</i>	Pileated Woodpecker	MBTA			No	Coniferous forest, especially of old trees some of which are dead and decaying, still standing or prone. Dead conifers and large aspens are used for nesting purposes. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<b>Passeriformes</b>								
<i>Contopus cooperi</i>	Olive-sided Flycatcher	MBTA			No	Typically, coniferous forest of mature but of open or interrupted stand. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Contopus sordidulus</i>	Western Wood-Pewee	MBTA			No	Typically, woodland or broken coniferous forest, or a mixture of the two. Foraging occurs mostly out into the open. Nesting sites are on the larger horizontal branches of trees with a wide-open pattern of branch-work. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Empidonax difficilis</i>	Pacific-slope Flycatcher	MBTA			No	Characteristically, places near running water that are well shaded. Foraging is conducted beneath the crowns of the trees. Nesting sites must be available as exemplified by crevices in earth or rock walls or banks, by cavities or cracks in living or dead tree-trunks, or by protected beams or posts under bridges and about buildings. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Sayornis nigricans</i>	Black Phoebe	MBTA			No	Typically, close vicinity of running water where shaded by riparian trees or by high banks. Food source is not only in the airway above the water and above the adjacent moist bottomland, but also, in part, the surface of the water. For nesting, mud must be available, and nest sites, comprised naturally in protected rock faces, must be near if not above water. A tolerated or second-choice habitat is that provided by any kind of open water with near-by buildings. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Myiarchus cinerascens</i>	Ash-throated Flycatcher	MBTA			No	Typically, in breeding season, brushland or chaparral where relieved by an occasional tree affording a hole or hollow for nesting purposes. Always in the vicinity are bushes, furnishing perches and out-look posts for low-height aerial foraging. This is essentially a dry-country inhabiting flycatcher; when bottomlands are invaded, it is not because of accessible water but because nesting holes and tracts of bushes can be found there. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Tyrannus verticalis</i>	Western Kingbird	MBTA			No	Dry open situations where one or two trees provide out-look posts and roosting and nesting sites. In lieu of trees, derricks, windmills, telephone or power poles, or even fence-posts are used. (Grinnell and Miller, 1944)	Present	This species has been observed foraging within the CPVVS site

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Lanius ludovicianus</i>	Loggerhead Shrike	MBTA		SC	No	Open terrain with well spaced lookout posts, at least two feet high. West of the Sierra Nevada, farm lands in the valleys and on rolling hills offer favorable habitat. (Grinnell and Miller, 1944)	Present	This species has been observed foraging within the CPVVS site. The nearest loggerhead shrike occurrence reported in the CNDDDB (occurrence #3) is a nest observed 26 miles southeast of the CPVVS site in an ornamental tree near an abandoned house.
<i>Vireo cassinii</i>	Cassin's Vireo	MBTA			No	Oak and conifer forests that offer open branch-work at low and middle levels. Comparatively dry, warm forests are favored, although growth in canyons and near streams is also sought, especially in the south. Nest emplacements usually are in the lower branches of trees, not uncommonly in exposed, though shaded, situations. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Vireo huttoni</i>	Hutton's Vireo	MBTA			No	In and beneath the protecting crowns of evergreen oaks. Other plant associations frequented by smaller numbers of individuals are blue and golden oak woodlands, willow thickets, and Monterey pine, tan oak and Douglas fir forests. Large ceanothus bushes mixed with forest trees may be used for nesting. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Vireo gilvus</i>	Warbling Vireo	MBTA			No	Deciduous trees, especially those growing in moist places, such as alders, willows and cottonwoods. Nest sites and singing posts are at middle heights. Orchard trees, aspens, and black oaks may in some places be occupied extensively. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Cyanocitta stelleri</i>	Steller's Jay	MBTA			No	Coniferous forest, and constituent trees. Locally, marginally, or sporadically, other kinds of trees and their environs may be inhabited: golden oak, live oaks, laurel, and even eucalyptus. In winter most foraging is done on the ground, even well out in open spots. Early spring sees returning restriction to shadowy places; intense summer sunshine is avoided. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Aphelocoma californica</i>	Western Scrub-Jay	MBTA			No	Interrupted woodland; mixed trees and brushland. Present in greatest numbers in localities in which live oaks grow, these providing food, shelter, and desired nest sites. Other plants may serve: willow, elderberry, hazel, spruce, and larger brush plants, such as ceanothus and coffee berry. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Pica nuttalli</i>	Yellow-billed Magpie	MBTA			No	Broad expanses of open ground, valley floors or hills of gentle slope, and large trees either scattering, in linear arrangement as where bordering stream courses, or as forming open park-like groves. Although omnivorous, food in adequate amount inclusive of large insects must be present through the annual cycle to hold a local population. (Grinnell and Miller, 1944)	Present	This species has been observed flying through the CPVVS site
<i>Corvus brachyrhynchos</i>	American Crow	MBTA			No	Restricted to valleys and rolling hills affording both extensive tracts of bare, chiefly open alluvial ground and tracts of woodland with trees large enough to support nests in the breeding season. (Grinnell and Miller, 1944)	Present	This species has been observed flying through the CPVVS site
<i>Corvus corax</i>	Common Raven	MBTA			No	Requires large areas of open or semi-open terrain for foraging, as well as cliff faces, bluffs or sea-walls which provide safe niches for nests. Substitutes are afforded by trees, deserted barns and windmills, and oil derricks. Seashore, desert floor, open upland, or sequestered mountain meadow all provide productive foraging habitat. (Grinnell and Miller, 1944)	Present	This species has been observed flying through the CPVVS site

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Eremophila alpestris</i>	Horned Lark	MBTA			No	Barren, short-grass, valley and foothill terrain; low mesa land, strewn with rocks (as east of Red Bluff), often where the soil is much exposed most of the year and is of a conspicuously reddish hue; in rice-growing country, roadways and dike-tops. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Tachycineta bicolor</i>	Tree Swallow	MBTA			No	Vicinity of bodies of fresh or brackish water such as lakes, ponds, sloughs, large streams, stagnant meadow creeks, or marshes. For nesting, trees or stubs containing woodpecker-excavated holes. Perches are provided by the naked twig-tips of dead trees or, where available, overhead wires along roads or dikes. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Tachycineta thalassina</i>	Violet-green Swallow	MBTA			No	Nesting habitat can be in the vicinity of cliff-faces or precipitous canyon walls, with small crevices for nesting, or in broken or open woods, or margins of heavy forest, on either level, rolling or steep-sloping terrain, with trees containing woodpecker excavations for nesting. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	MBTA			No	During nesting period, low earthen banks, as along slow-flowing streams, for the nesting burrows; but these burrows as a rule are modified holes already dug by rodents or kingfishers, or are "natural" ones. Vicinity of water is not an essential, thus localities that are extremely arid within the nesting period can be tolerated. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Riparia riparia</i>	Bank Swallow	MBTA			No	In summer, extremely restricted due to specialized nesting requirements. To dig their own holes in the vertical faces of banks or bluffs, there must be layers of sand or sandy loam, of diggable consistency. Sea bluffs and banks of the lower courses of large streams are represented. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	MBTA			No	Requirements through breeding season include at least: (1) rough rock surfaces to which mud nests will adhere; (2) mud for nest material; (3) presence of smooth-surfaced fresh water for drinking; (4) insect-carrying airways, over water, marshes or grassland, for forage purposes. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Hirundo rustica</i>	Barn Swallow	MBTA			No	Habitat must afford water and mud for nest-building purposes. Also, there must be nest sites of "natural," overhung hollows in banks of streams or lakes of rock or almost as solid, to make possible firm fixation of the mud nests. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Poecile rufescens</i>	Chestnut-backed Chickadee	MBTA			No	Coniferous forest and adjacent woodland. Cavities for nesting seem most often chosen in dead or partly dead deciduous kinds of trees. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Baeolophus inornatus</i>	Oak Titmouse	MBTA			No	Characteristically, open-type woodland of which oaks of one kind or another are exclusive or dominant constituents. Rotted out knot holes, split stubs and cavities excavated by woodpeckers usually are abundantly available as nest sites, utilization may include a large variety of natural and artificial cavities when conditions demand. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Psaltriparus minimus</i>	Bushtit	MBTA			No	Bushes and small trees of kinds which bear broadleaved, evergreen foliage--this being essential especially in winter for food production and for the gathering of the food items. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Sitta carolinensis</i>	White-breasted Nuthatch	MBTA			No	Open-branched trees with trunks and larger branches that are rough barked, upon which most of the foraging is done. There must be present dead, or partly dead, trunks, providing cavities for nesting purposes. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Certhia americana</i>	Brown Creeper	MBTA			No	Mature forest, wherein trees are rather close set. The trunks and larger branches of conifers seem preferred for all purposes, those of broadleaved trees also provide forage ground, especially so in winter. For successful nesting, crevices or spaces in or beneath bark must be available. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Salpinctes obsoletus</i>	Rock Wren	MBTA			No	Primarily rocky situations but also dry, storm-cut earth banks especially where penetrated by rodent burrows, stony road-side banks, rock walls, deserted wooden buildings, and prone logs in forest-margins. Essential feature is presence of crevices of suitable size which serve the bird for insect foraging, shelter, emergency refuge, and for nesting. Seemingly eschews water. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Catherpes mexicanus</i>	Canyon Wren	MBTA			No	Cleft faces of rock walls; interstices among boulders of rock slides or among fragments resulting from weather-shattering of rock outcrops. The appertaining surfaces and crevices furnish forage, safety and nest sites (Grinnell and Miller, 1944).	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Thryomanes bewickii</i>	Bewick's Wren	MBTA			No	Lower brush-belt of mountain slopes. Broken or discontinuous brushland seems most frequented, especially where interspersed with oak of one species or another, and digger pine. But also the birds extend down out of the mountains along stream courses where there are dense thickets of willow, grapevine, rose and other woody riparian plants. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Troglodytes aedon</i>	House Wren	MBTA			No	For foraging, thickets, low trees and tracts of chaparral. For successful nesting, there must be nearby trunks of trees in which cavities are available. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Cistothorus palustris</i>	Marsh Wren	MBTA			No	Typically, especially in nesting season, thick tracts of tall, straight stemmed marshland vegetation as comprised of cattail, tule, and bulrush. In the migrations and in winter any sort of low vegetation growing in water or on damp ground suffices for foraging and concealment of these wrens. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Poliophtila caerulea</i>	Blue-gray Gnatcatcher	MBTA			No	In nesting season, arid, well insolated park-like tree growths, of low or moderate stature, and broken chaparral. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Sialia mexicana</i>	Western Bluebird	MBTA			No	In breeding season, the prime requisite is well spaced, broken timber, providing nest sites and an abundance of exposed lookout posts. In winter, mistletoe berries commonly are taken and the presence of this plant may govern local occurrence. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Catharus ustulatus</i>	Swainson's Thrush	MBTA			No	In summer, riparian thickets of willows and alders and dense forest understory on moist slopes near streams or meadows. Tangles of blackberry, dogwood, and dense bracken form excellent cover. In such places sources of mud for nests are present, and forage beats in the low humid green foliage are provided. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Turdus migratorius</i>	American Robin	MBTA			No	In nesting season, meadows and moist stream-sides, or lawns, gardens and soft cultivated ground, with adjoining, open or scattered trees for nest sites. (Grinnell and Miller, 1944)	Present	This species has been observed flying through the CPVVS site
<i>Mimus polyglottos</i>	Northern Mockingbird	MBTA			No	As a rule, level terrain scatteringly grown to large bushes or small, stiff twigged, dense-foliaged trees. This type of growth is required for nest sites and for roosting and refuge purposes, in part for foraging. (Grinnell and Miller, 1944)	Present	This species has been observed flying through the CPVVS site
<i>Phainopepla nitens</i>	Phainopepla	MBTA			No	In general, though most especially in winter, areas which provide scattered stands of usually smallish trees, quite essentially such trees as bear growths of mistletoe. Nesting environs chosen are of the same, open woodland type, but need not include trees bearing mistletoe. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Dendroica nigrescens</i>	Black-throated Gray Warbler	MBTA			No	The common requirement in the diverse areas where this warbler occurs seems to be fairly dense foliage, often stiff, harsh and semi-xerophytic, which either through local exposure or by reason of the prevailing summer climate in the region is warm and at least moderately dry. (Grinnell and Miller, 1944)	Low	Following disking of the site, no nesting or foraging habitat is present within the CPVVS site; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Geothlypis trichas</i>	Common Yellowthroat	MBTA			No	For nesting, low thick tangles of plant growth in or about fresh- or brackish-water marshes and sloughs; extremely small areas of flooded ground in river bottoms or along lake shores may suffice. Important is continuous cover for concealment in foraging down to the mud or water surfaces. Nests are placed low down, often over the water.(Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Geothlypis trichas sinuosa</i>	saltmarsh common yellowthroat	MBTA		SC	Yes	In summer, fresh and salt water marshes, but chiefly the former. More commonly found near salt and brackish water in fall and winter. Tall grasses, tulepatches and willow thickets provide normal plant environment for nesting activity. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site. The nearest nest occurrence (CNDDB occ. # 91) is reported 9 miles southwest of the CPVVS site.
<i>Wilsonia pusilla</i>	Wilson's Warbler	MBTA			No	Low, shaded, plant cover close to streams, meadows or seepage of water on hillsides. Nest sites are found on the ground or up two or three feet in tangles of vegetation. In seasons of migration, low thick vegetation is preferred but not solely in the vicinity of water. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Icteria virens</i>	yellow-breasted chat	MBTA		SC	Yes	For breeding activities, low dense riparian plant growth, consisting most commonly of willow thickets and tangles of tall weeds, blackberry vines and grapevines. In the tangles of vegetation, spiders, insects and berries afford abundant food supplies in the summer season. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site. The nearest nest occurrence (CNDDB occ. # 70) is reported 12 miles northwest of the CPVVS site.
<i>Piranga ludoviciana</i>	Western Tanager	MBTA			No	Fairly open coniferous forests with their associated broad-leafed trees; less commonly dense live oak or piñon woodland. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Pipilo maculatus</i>	Spotted Towhee	MBTA			No	Chaparral, river bottom thickets, and brush patches in open forests. Found especially where there is a good accumulation of leaf litter and humus. For this reason partly dead or dying brush, ravine and river bottoms, and bases of cliffs or of steep slopes are favored situations. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Pipilo crissalis</i>	California Towhee	MBTA			No	Broken or marginal chaparral and vicinity of dense shrubby thickets; open ground closely adjacent to brush cover required for foraging purposes. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Aimophila ruficeps</i>	Rufous-crowned Sparrow	MBTA			No	Hillsides that are grass covered and grown to sparse low bushes, scarcely dense enough to constitute true chaparral. Grass clumps and bases of bushes are used to conceal the nests which are sunk level with the ground surface. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Spizella passerina</i>	Chipping Sparrow	MBTA			No	Of great variety, but in summer includes the following elements: trees, scattered or in open stands through which much light penetrates to the ground; ground forage area essentially bare or covered with sparse or dense grass, but usually not with continuous, tall grass; the ground usually is not heavily shaded or extensively bush covered. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Spizella atrogularis</i>	Black-chinned Sparrow	MBTA			No	Arid chaparral, in which adenostoma, ceanothus and scrub oak predominate. In one instance has nested in a tract of Baccharis pilularis. Bushes are fairly dense and 3 to 6 feet high, and occasional trees may be intermixed. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Chondestes grammacus</i>	Lark Sparrow	MBTA			No	A combination of open terrain with scattered bushes and trees with opportunity to forage on the ground and yet to utilize elevated places for viewpoints and retreats. (Grinnell and Miller, 1944)	Low	Following disking of the site, no nesting or foraging habitat is present within the CPVVS site; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Amphispiza belli</i>	Sage Sparrow	MBTA			No	Arid chaparral, usually fairly dense or continuous and 2 to 5 feet in height. Preference for tracts of chamise (Adenostoma). Occurs sparingly in Baccharis and Artemisia brush to northward and also is found in brush growing on sand dunes and mesas near seacoast, and in mixed brush and cactus patches in arid washes. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Passerculus sandwichensis</i>	Savannah Sparrow	MBTA			No	Of two main types: most importantly the Salicornia association of tidal marshlands, and secondarily upland grassy slopes in the coastal fog belt. Nests on tidal land are ensconced in the tangled vegetation, usually slightly above the mud so that flooding except by the highest spring tides is avoided (Grinnell and Miller, 1944)	Present	This species was observed perching within the CPVVS site during field surveys conducted prior to disking.
<i>Ammodramus savannarum</i>	grasshopper sparrow	MBTA		SC	No	Grassland, usually that with a considerable variety of plant species. Apparently thick cover of grass or annuals is essential for concealment while foraging and nesting on the ground. (Grinnell and Miller, 1944)	Low	Following disking of the site, no nesting or foraging habitat is present within the CPVVS site; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site. The nearest nest occurrence (CNDDB occ. # 16) is reported 9 miles northeast of the CPVVS site.
<i>Melospiza melodia</i>	Song Sparrow	MBTA			No	Brushland on ocean-facing slopes, even down to the shore-line and to edges of salt marshes, but not in them; also, fresh-water marshes and riparian growth, especially willow clumps, bottomland shrubbery and tangles of nettles, blackberry and other vines. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Melospiza melodia maxillaris</i>	Suisun song sparrow	MBTA		SC	Yes	Brackish-water marshes. Tangles bordering sloughs and those growing in the water are occupied as well as cover over moist ground. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site. The nearest nest occurrence (CNDDB occ. # 25) is reported 9 miles southwest of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Junco hyemalis</i>	Dark-eyed Junco	MBTA			No	Breeds in coniferous and mixed forest. Winters in fields, suburbs, cemeteries, chaparral, parks, gardens, grassy dunes, and fencerows. Feeds on seeds and insects. Nest an open cup with foundation of rootlets, dried leaves, moss, and bark strips. Usually placed in small cavity on sloping bank or rock face, among roots of toppled tree, or along sloping road cut. (Nolan et. al 2002)	Low	Following disking of the site, no nesting or foraging habitat is present within the CPVVS site; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Pheucticus melanocephalus</i>	Black-headed Grosbeak	MBTA			No	Riparian woodland, oak woodland with associated shrubs, and open coniferous forests of Transition and Upper Sonoran zones, especially where intermixed with deciduous oaks. Food is varied and the species may require several kinds of supply in the nesting area. (Grinnell and Miller, 1944)	Low	Following disking of the site, no nesting or foraging habitat is present within the CPVVS site; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Passerina caerulea</i>	Blue Grosbeak	MBTA			No	For nesting, low thick vegetation in the vicinity of water. All activity centers near the ground; nests rarely are placed as high as 20 feet up, and usually from 2 to 10 feet. In migration, and after nesting, no particular adherence to damp situations is noted. (Grinnell and Miller, 1944)	Low	Following disking of the site, no nesting or foraging habitat is present within the CPVVS site; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Passerina amoena</i>	Lazuli Bunting	MBTA			No	In breeding season, clumps of bushes, broken chaparral, weed thickets and other low vegetation on hillsides or in and about water courses, but not usually over water or damp ground. In arid regions occurs chiefly or exclusively in such cover as grows near streams and springs. (Grinnell and Miller, 1944)	Low	Following disking of the site, no nesting or foraging habitat is present within the CPVVS site; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	MBTA			No	In nesting season, fresh- and brackish-water marshes, lake margins, vicinities of lowland streams, wet pastures, and grain and mustard fields near or over moist ground or small seeps of water. Nesting cover most commonly is provided by tule patches, cattails, willow thickets, mustard, and heavy stands of grasses, and sites range normally from 5 inches to 6 feet above ground; occasionally nests are placed in the crowns of trees such as oaks. (Grinnell and Miller, 1944)	Present	This species has been observed perched and possibly nesting within the CPVVS site
<i>Agelaius tricolor</i>	tricolored blackbird	MBTA		SC	Yes	In nesting season, vicinity of fresh water, especially marshy areas. The most favored sites for colonies are heavy growths of cattails and tules, but other vegetation may be resorted to for nesting. Nests have even been found on the ground. (Grinnell and Miller, 1944)	Present	This species has been observed flying over the CPVVS site. The nearest nest occurrence (CNDDDB occ. # 107) is reported 14 miles south of the CPVVS site.
<i>Sturnella neglecta</i>	Western Meadowlark	MBTA			No	Grassy plains, hill slopes and meadowlands in which grass is present in large tracts and is thick or deep enough to permit concealment by crouching. Grass and low annual plants may be moderately intermixed with bushes. Various cultivated crops, particularly alfalfa, provide the requirements otherwise found in native grasslands. (Grinnell and Miller, 1944)	Present	This species was observed within the CPVVS site during field surveys conducted prior to disking.
<i>Euphagus cyanocephalus</i>	Brewer's Blackbird	MBTA			No	In the spring season, grassland, meadows, or moist lake and stream margins, with trees or tall bushes. Nest emplacements vary greatly; occasionally the ground is used and numerous instances of nesting in crevices in stumps have been reported. Most favored nest sites are in dense masses of foliage. (Grinnell and Miller, 1944)	Present	This species was observed within the CPVVS site during field surveys conducted prior to disking.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<i>Molothrus ater</i>	Brown-headed Cowbird	MBTA			No	River bottomlands primarily, especially where pastures or meadowlands lie adjacent to tracts of willows and cottonwoods; also invades orchard and suburban areas. Forages mostly on open ground, often in vicinity of cattle, but roosts in trees. In breeding season seeks fosterers mostly among those passerine species which nest in riparian growths; but the total number of birds in the nests of which this cowbirds' eggs have been found in California is very large and inclusive of species of almost every ecologic niche anywhere in the general breeding area. (Grinnell and Miller, 1944)	Present	This species was observed within the CPVVS site during field surveys conducted prior to disking.
<i>Icterus cucullatus</i>	Hooded Oriole	MBTA			No	Originally, broad-leaved woodland along water courses, including canyons and dry arroyos. With widespread planting of palms and of other large trees about cities and ranches, artificial woodlands are a satisfactory substitute for natural conditions. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Icterus bullockii</i>	Bullock's Oriole	MBTA			No	Riparian and oak woodland, especially where trees are large and well spaced or in isolated clumps. Adjacent open fields, grass or bush covered, serve for foraging in addition to the leafy crowns of the trees. Nests are placed in the foliage six feet or more above the ground and often at middle or upper levels in the tree. (Grinnell and Miller, 1944)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Carpodacus purpureus</i>	Purple Finch	MBTA			No	As breeding, oak woodland and coniferous forest in which there are at least some densely foliated trees or compact tree-clumps. Commonly the plant cover is diversified in the vicinity of the nest, affording mixture with chaparral, grassland and meadowland in which foraging may take place as well as in the terminal foliage of the trees. (Grinnell and Miller, 1944)	Low	Following disking of the site, no nesting or foraging habitat is present within the CPVVS site; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Carpodacus mexicanus</i>	House Finch	MBTA			No	Remarkably varied, the following apparent requirements being met by a great diversity of situations: (1) water, with fruits perhaps forming a satisfactory substitute; (2) open ground with low seed-producing plants; (3) fruits and berries during part of year (possibly not essential); (4) trees, cliffs and earth banks, or man-made structures for roosting and placement of nests above ground. Open places and sunshine are favored and in the foothill districts, great interior valleys and coastal plains the House Finch is the predominant avian species in fields and orchards, and about scattered trees and ranch buildings. (Grinnell and Miller, 1944)	Present	This species was observed within the CPVVS site during field surveys conducted prior to disking.
<i>Carduelis psaltria</i>	Lesser Goldfinch	MBTA			No	Preferred habitats include oak savannas, woodlands, and suburban gardens (WhatBird, 2008)	Low	No nesting or foraging habitat was observed within the CPVVS site during field surveys; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Carduelis lawrencei</i>	Lawrence's Goldfinch	MBTA			No	As breeding, usually oak woodland and open or broken forest of the arid Transition Zone. Grassland, growths of tall annuals, and chaparral are plant formations where seed supplies may be found. Sources of water probably also are necessary. Nests are found in a large variety of trees and bushes (Grinnell and Miller, 1944)	Low	Following disking of the site, no nesting or foraging habitat is present within the CPVVS site; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.
<i>Carduelis tristis</i>	American Goldfinch	MBTA			No	For nesting, chiefly the riparian association in which willows and cottonwoods predominate. Nests are less commonly placed in other cover, as orchard trees, oaks, ceanothus bushes, and even low annual vegetation. In the vicinity of the nest open country ordinarily is available where the birds may forage near the ground and in bush tops. (Grinnell and Miller, 1944)	Low	Following disking of the site, no nesting or foraging habitat is present within the CPVVS site; however, this species may fly over the site while transitioning from suitable habitat located outside of the CPVVS site.

TABLE 5.2-2  
Special Status Animal Species Potentially Found in the CPVVS Site

Scientific Name	Common Name	Status				Range/ Habitat requirements	Site Potential	Site Rationale
		Federal	State	CDFG	SMHCP			
<b>Mammals</b>								
<i>Lasiurus blossevillii</i>	western red bat			SC	No	Roost only in tree foliage, including orchards. Closely associated with cottonwoods in riparian areas at elevations below 6,500 feet. Typically feed along forest edges, in small clearings, or around street-lights where they prefer moths. May burrow into leaf litter or dense grass for hibernation.	Moderate	Suitable foraging habitat for this species occurs within the CPVVS site. The nearest western red bat occurrence reported in the CNDDDB (occurrence #69) was detected 14 miles south of the CPVVS site in a narrow riparian area.
<i>Lasiurus cinereus</i>	hoary bat		SSA		No	May be found at any location in California. Generally roosts in dense foliage of medium to large trees (CWHR 2008)	Moderate	Suitable foraging habitat for this species occurs within the CPVVS site. The nearest nest occurrence (CNDDDB occ. # 122) is reported 10 miles southwest of the CPVVS site.

## Notes:

Federal Status

FE = federally listed as endangered

FT = federally listed as threatened

MBTA = Migratory Bird Treaty Act

BGEPA = Bald and Golden Eagle Protection Act

State Status

SE = State listed as endangered

ST = State listed as threatened

SC = State species of concern

FP = State fully protected species

SSA = State Special Animal

Solano Habitat Conservation Plan (SHCP)

Yes = covered species

No = not a covered species